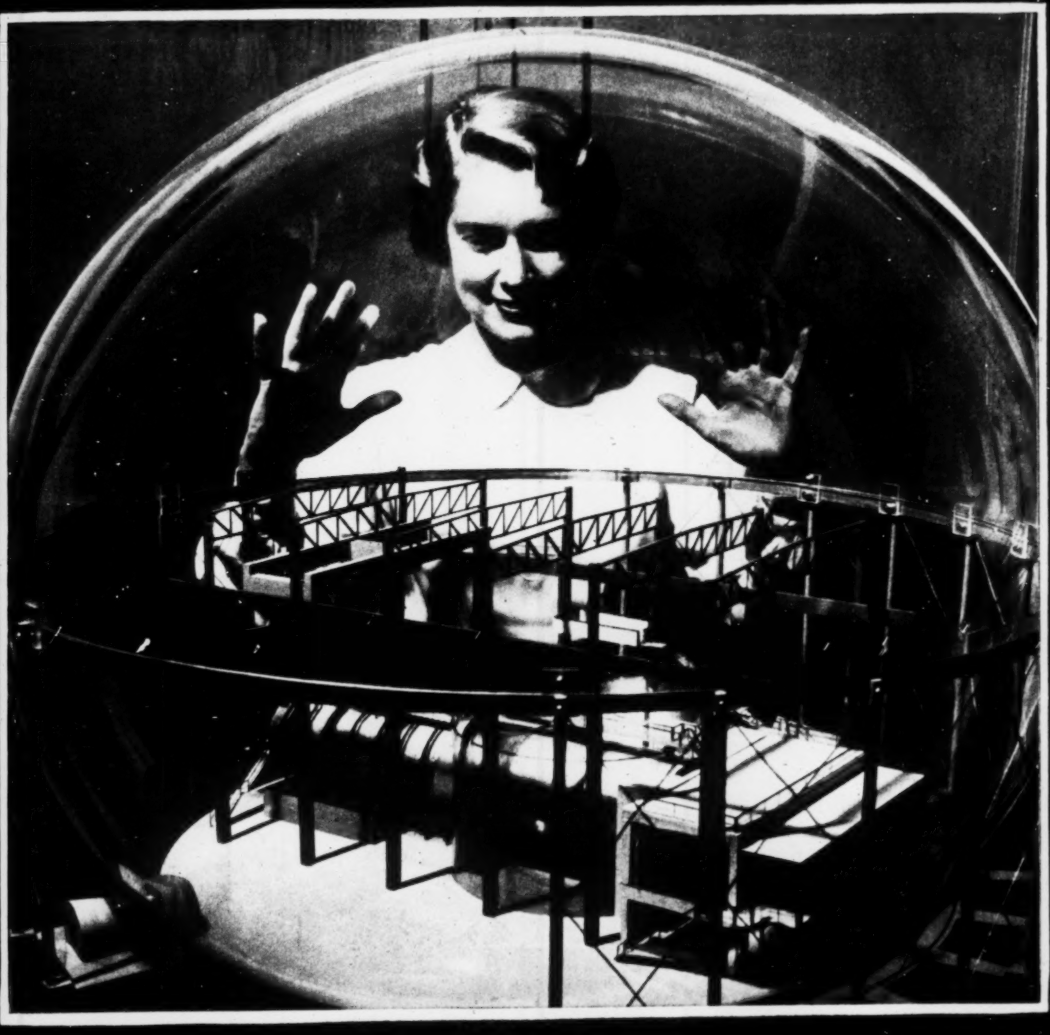
ENGINEERING NEWS-RECORD



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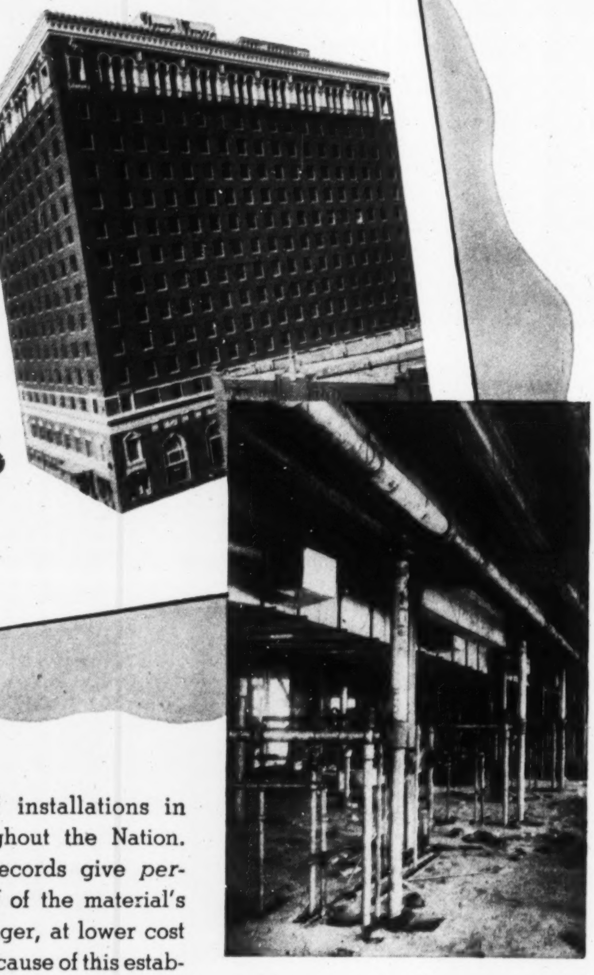
A McGRAW-HILL PUBLICATION

PIPE PROGRESS REPORT
HOTEL TEXAS, FORT WORTH

BYERS Wrought Iron Pipe STILL SERVING AFTER 33 trouble-free years



In 1920, Byers Wrought Iron pipe was assigned to the job of protecting hot and cold water lines, fire lines and ice water lines in the then new Hotel Texas in Fort Worth. A portion of the installation, taken during the construction of the Hotel, is pictured above. How well this time-tested material is doing its job was revealed in a recent building survey of the Fort Worth area. A complete investigation, conducted by the Hotel's engineer, showed that all wrought iron services have operated maintenance-free for the past 33 years, and are still in excellent condition.

This Hotel Texas report is typical of service records established by Byers Wrought Iron pipe in a wide variety of installations in buildings throughout the Nation. These service records give *performance-proof* of the material's ability to last longer, at lower cost per year. And because of this established superiority, architects and engineers in increasing numbers are applying Byers Wrought Iron to those services where corrosion is a threat to pipe life.

Wrought iron's longer life comes from its unusual composition and structure. Tiny threads of glass-like silicate slag, threaded through the body of high-purity iron, halt and "detour" corrosive attack. The fibers also anchor the initial protective scale, which shields the underlying metal.

A knowledge of the nature, characteristics and methods of manufacture of wrought iron is an excellent guide to its proper application. Our booklet, THE ABC's OF WROUGHT IRON, gives the complete story. We'd like to send you a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.

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Contents on page 17

Waldo G. Bowman
Editor

E. E. Halmos Jr. .... Managing Editor
V. T. Boughton .... Transportation, Power
F. S. Merritt .... Architectural, Structural
R. H. Dodds .... Contracting, Heavy Construction
A. J. Fox Jr. .... Hydraulics, Water supply, Sanitation
J. J. Christie .... National Affairs
A. A. Layne .... Labor, Men and Jobs
J. P. Chamberlain .... Business and Finance
R. W. O'Neill .... International, Features
A. R. Smith .... Municipal
S. C. Jensen .... Materials and Equipment
J. R. Carr .... Chicago
L. L. Wise .... San Francisco
Elsie Eaves .... Business News Department
J. H. Webber .... Economics
J. A. Mahoney, M. O. Wetzel .... Construction Reports
M. W. Roessler, E. R. Huber, Dori Spielberg .... Statistics, Costs, Prices
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Publisher

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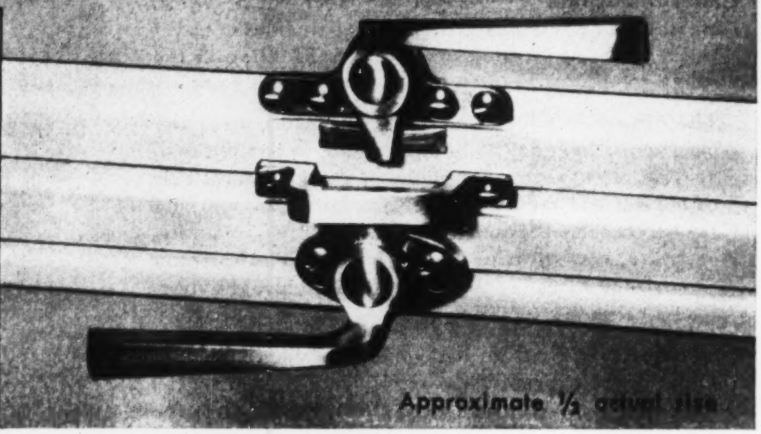
BAYLEY WINDOWS



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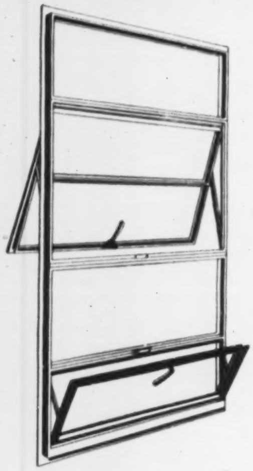

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Regardless of your window requirements you will find extra values in Bayley's years of specialized window experience. So discuss your needs with us. Write or phone.

See Bayley in Sweet's. Complete catalogs on aluminum windows, 16a/Bay; steel windows, 16b/Ba; Saf-T-Gard Hospital Detention Window, 16b/Bay.

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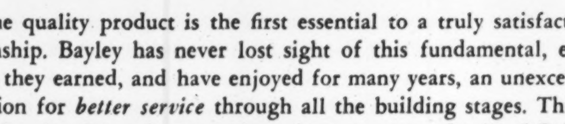

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CARBIDE INSERT? or MULTI-USE?

LOCATION: Folsom Dam, Folsom, California.

OPERATING CONDITIONS: Small blast holes through blocky and decomposed granite.

With TIMKEN® carbide insert bits, H. Earl Parker Co. drills foot of granite per minute of drilling time, averages 600 ft. of hole per bit!

APPROXIMATELY a foot of penetration per minute while drilling! An average of 600 feet of hole per bit! Bit cost materially reduced. These are the results H. Earl Parker Company says it obtained by using Timken® carbide insert bits to drill small blast holes at the Folsom Dam project in California.

Timken carbide insert bits are always your best answer for highest speed through hard and abrasive ground. They're also most economical for constant-gage holes, small diameter blast holes and very deep holes.

But they are *not* the best answer to *all* of your drilling problems!

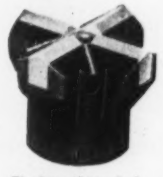
More economical for ordinary ground are Timken multi-use bits. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

To make sure you're using the best bit type for your drilling requirements, call on the Timken Rock Bit Engineering Service. Twenty years of rock bit experience have made the Timken Company the leader in the field. It has an extensive field engineering service. And it makes both types of bits—both of which are interchangeable on the same steel.

Whichever you choose—carbide insert or multi-use—Timken rock bits have these important advantages: (1) made from electric furnace Timken fine alloy steel, (2) special shoulder unions which protect threads from drilling impact, (3) quickly and easily changed.

For help in selecting the best bits for *your* job, write The Timken Roller Bearing Company, Rock Bit Div., Canton 6, Ohio. Cable address: "TIMROSCO".

Timken threaded multi-use rock bit



Timken threaded carbide insert rock bit

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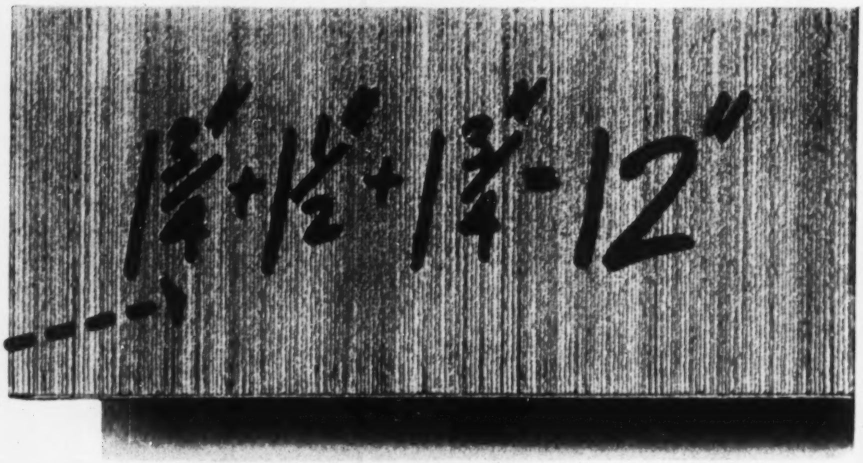

Sure we can prove it! The U-value of the 5″ thick MARIETTA precast insulated, concrete wall panel is 0.14. The U-value for 12″ of masonry construction is 0.36. With only 1½″ of insulation, these slabs have an insulating value greater than 12″ of masonry!

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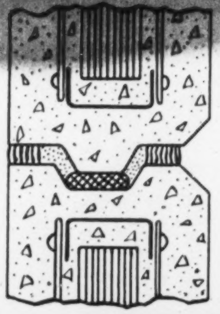

cut erection time 50%!
cut erection costs 30%!

MARIETTA panels consist of two layers of high strength, reinforced concrete (4,300 psi rating), separated by a core of rigid insulation. They have tongue and groove edges, and are cast with metal inserts that bolt to steel framework to eliminate time-consuming, costly masonry work.

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. . . *says* **CHARLES BENDA,** *Owner,*
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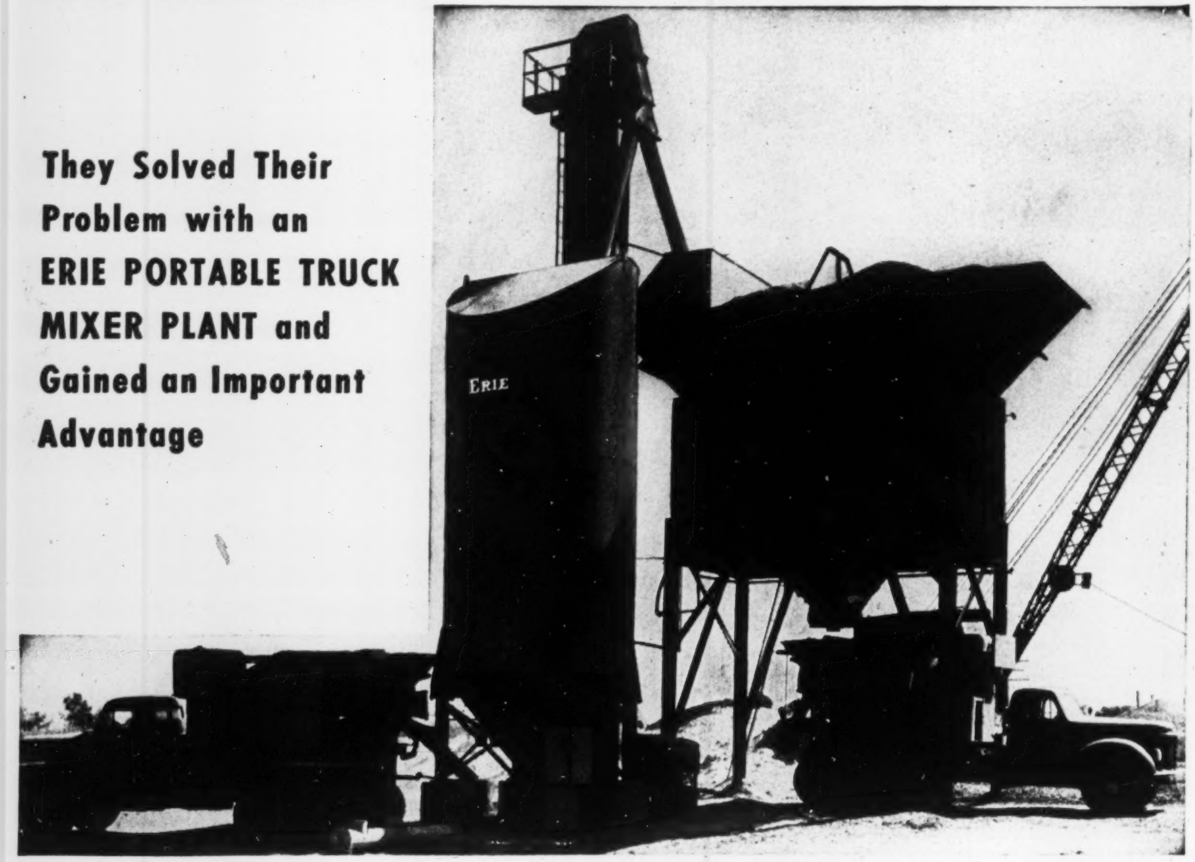

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More Facts About Erie's GTES-79 Portable Truck Mixing Plant

One man can operate this unit at full capacity.

It's pre-assembled into large sections which make set-up and take down fast and easy. Stows compactly for over-the-road transit too.

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Number 10 of a series

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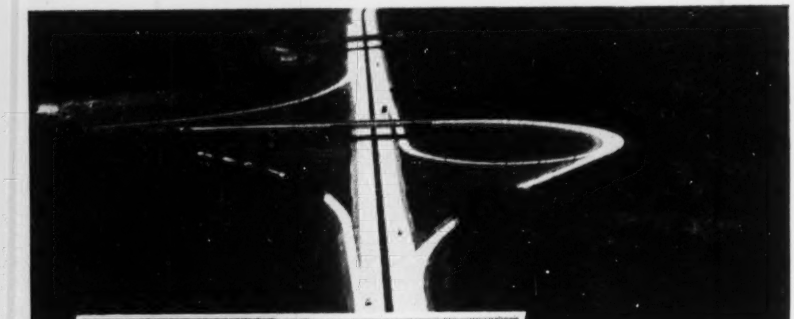

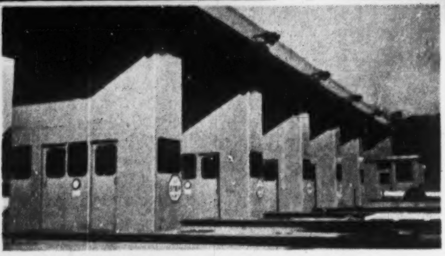

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Here are just a few of the reasons why the Pennsylvania Turnpike Commission and so many other toll facilities have selected Taller & Cooper equipment:

- Accurate, long-life, heavy duty treadle counting
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- Maximum comfort and safety for personnel
- Erected with minimum interference to traffic and road building

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THERE IS TALLER & COOPER TOLL COLLECTION EQUIPMENT ON EVERY MAJOR TOLL FACILITY IN THE UNITED STATES

READER COMMENT

Prestressed pavement

Sir: In your editorial of Dec. 4, 1952, p. 144, dealing with concrete surfacing for roads, you also mentioned the Roebling slab with the remark that it is not particularly economical, because a 3-in. prestressed slab is sliding on a 9-in. unreinforced concrete base.

This slab was constructed to my design with such modifications as resulted from team work with the Bridge Division of John A. Roebling's Sons Company, then under the direction of the late C. C. Sunderland. For choosing a 9-in. sub-base there were strong reasons which do *not* apply to the average road.

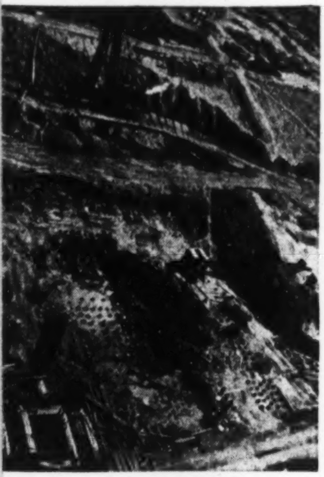
(1) The foundation was unequal and consisted partly of foundry sand and, in places, of natural soil.

(2) The slab was to support wire rope reels exerting a contact pressure up to 1,000 psi, or ten times the tire pressure of an airplane or a truck wheel. A good distribution of this load was essential if the prestressed slab was to slide without being hampered by undulations of the sub-base occasioned by imperfect distribution.

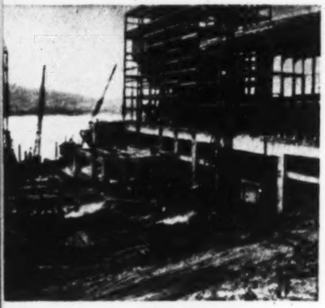
(3) At the time the slab was designed, we knew very little about the buckling of prestressed slabs. This one had a thickness of 3 in., was to be originally 400 ft long, and was under a two-way prestress of 700 psi. Originally we intended to anchor the slab to the 9-in. base by special anchors so arranged as to allow side movements of this sliding slab, but no lifting at any place. Subsequently C.C. Sunderland made tests showing that there is no buckling of prestressed structures from internal forces as long as an intimate contact between prestressing metal and concrete slab was safeguarded. So we decided to leave out the anchors, which proved fully adequate, because no warping of the slab took place. After this decision was made, we learned that a similar conclusion had been reached by Prof. Gustav Magnel in a paper published in 1944, which confirmed fully the conclusions that were reached as a result of the Roebling tests.

(*Continued on page* 15)

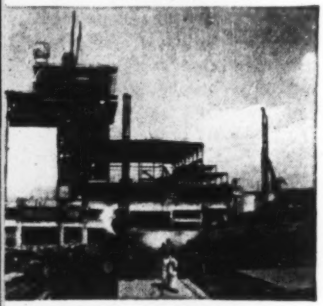
Raymond Step-Taper Piles in place for Unit #3 of the Beckjord Station.

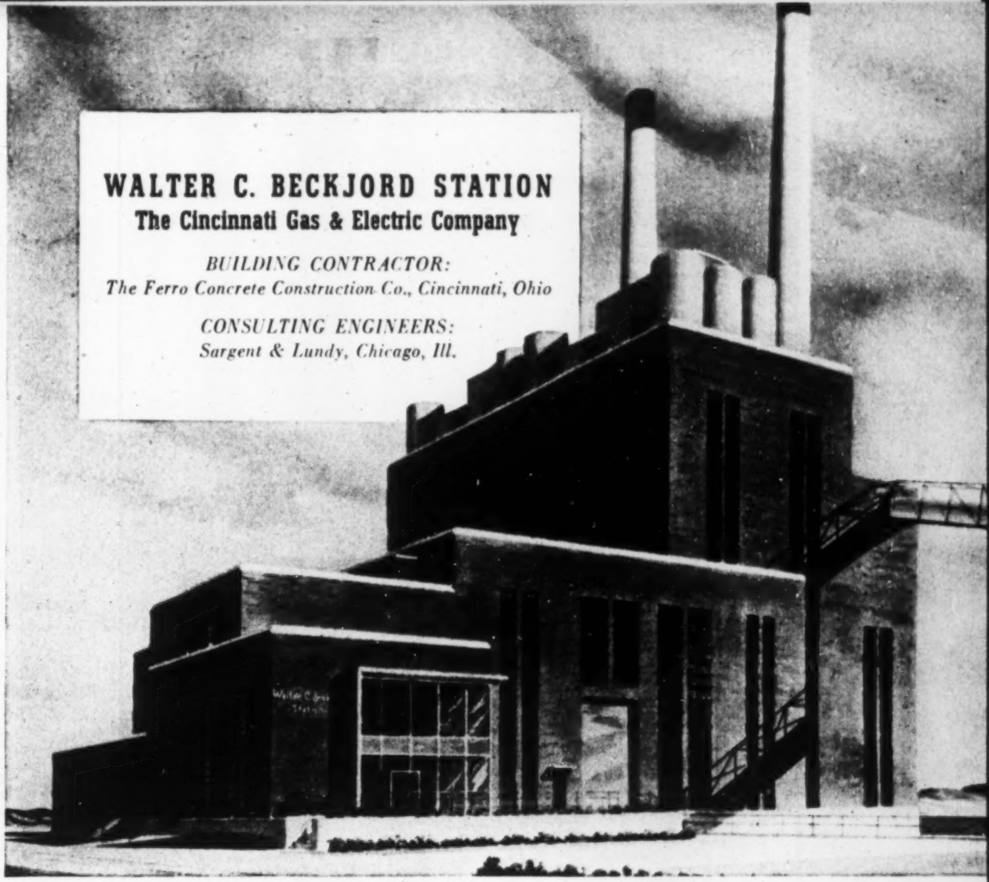


Two Raymond rigs driving piles for the condenser well and piers.



The first unit of the Beckjord Station nearing completion. Raymond rigs are driving piles for the third unit.





WALTER C. BECKJORD STATION
The Cincinnati Gas & Electric Company

BUILDING CONTRACTOR:
The Ferro Concrete Construction Co., Cincinnati, Ohio

CONSULTING ENGINEERS:
Sargent & Lundy, Chicago, Ill.

Raymond HELPS BRING MORE POWER TO CINCINNATI

In May 1952 the first of three new units of the Cincinnati Gas & Electric Company's new Walter C. Beckjord Station was placed in service. The concentrated loads in the boiler room area of this 100,000-kilowatt installation are carried by Gow Caissons founded on bedrock. The remainder of the building is supported on Raymond Step-Taper Concrete Piles.

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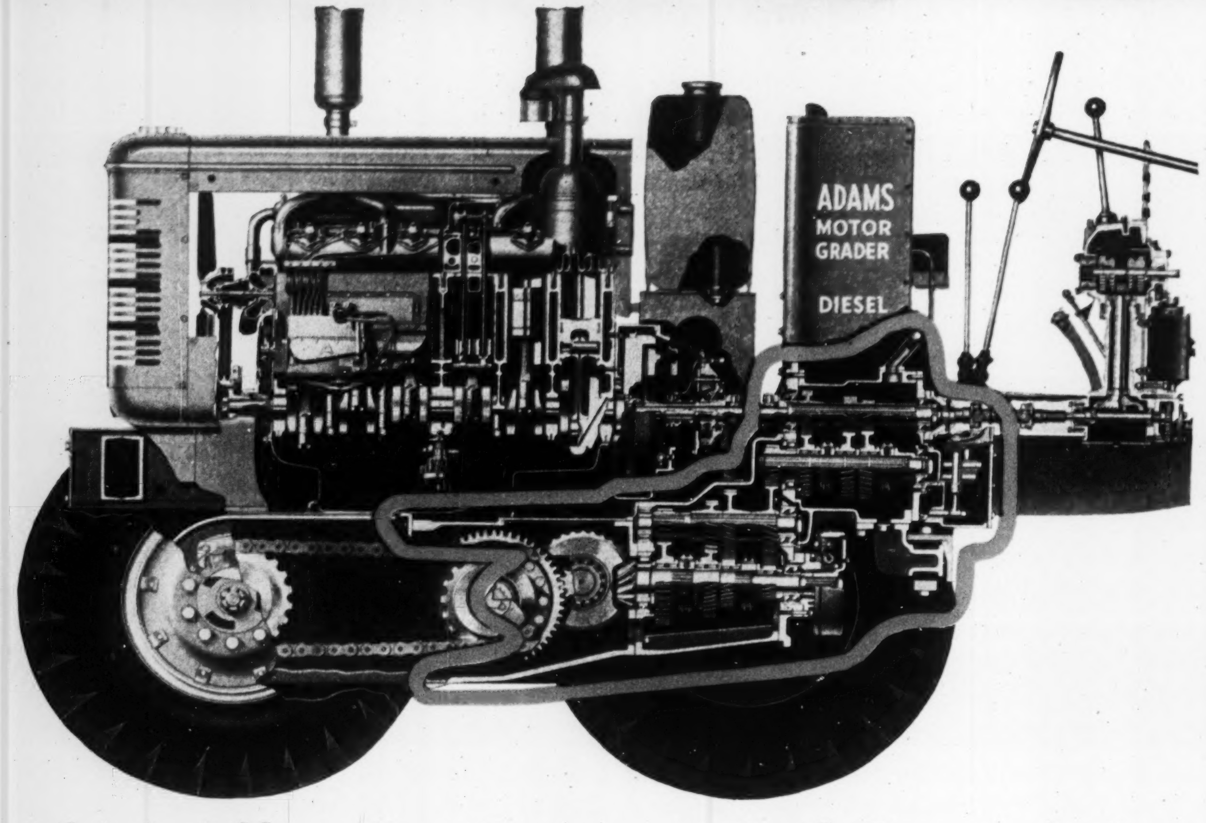


Adams Offers New Constant-Mesh Transmission

Features Helical Gears, Anti-Friction Bearings Throughout and Creeper Gear Option

All Adams 100 h.p. motor graders now feature a new Adams-built constant-mesh transmission and a new final drive which have more operating advantages, more quality and longer life built into them than ever before put into any motor grader.

All transmission gears (excepting low) are helical and are shaved and hardened for quietness, maximum tooth contact and long life. All free-running gears turn on roller bearings. Gear shifting is easy and positive due to direct connection between shift levers and transmission. The final drive has the full-floating rear axle which characterizes all Adams motor graders. All gears, shafts, bearings, housings, etc. throughout transmission and final drive are built with a safe margin of strength and durability.

8 Forward and 4 Reverse Speeds

The new transmission has 8 forward speeds found in all Adams motor graders furnishing a wide range of operating speeds plus a high transport speed of 25 to 26 m.p.h. New are 4 reverse speeds, ranging from approximately 1½ to 13½ m.p.h. which save time on contract work and backing to buck snow drifts.

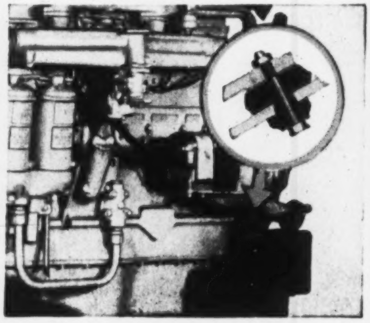
Creeper Gears New Optional Feature

To permit extra-low speeds, desirable on some work, the new Adams transmission is designed to accommodate "creeper" gears which provide 3 speeds ranging from approximately ¼ m.p.h. to 1¾ m.p.h. These are in addition to the standard 8 forward speeds. The "creeper" gears may be ordered as original equipment or may be installed at any time in the field at nominal cost.

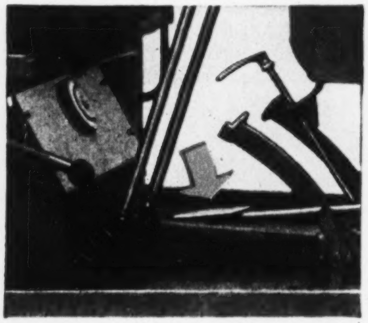
Dual Braking System Standard

The transmission has an external brake with internal expanding shoes which are actuated by the service brake pedal through the same hydraulic system which operates the wheel brakes. Braking efficiency is practically doubled. The same brake serves as a parking brake when set mechanically by parking brake lever.

New Transmission Also Brings These Improvements



Engines are rubber-mounted. Engine vibration is not transmitted to grader frame or operator's cab. This reduces operator fatigue and prolongs engine life.

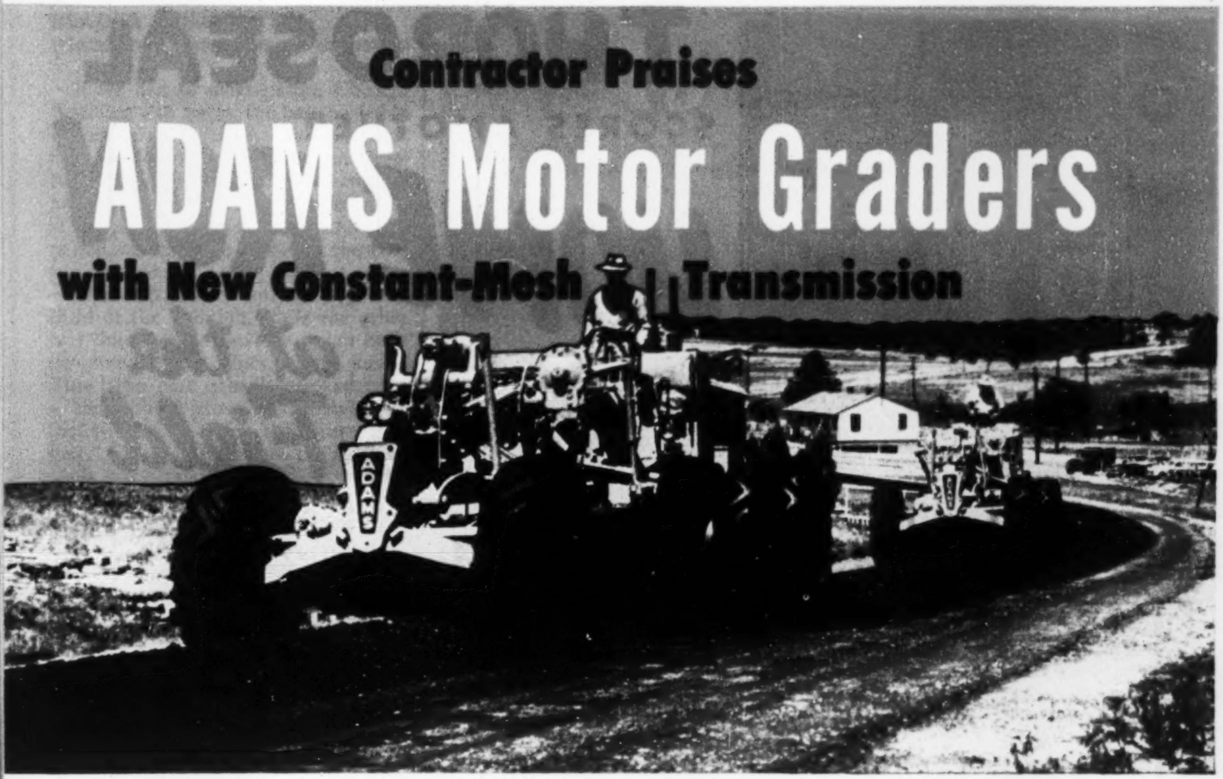


Foot accelerator permits operator to regulate travel speed as with a truck. Valuable in traffic on overland travel. Operator uses accelerator or hand throttle when working.

Contractor Praises

ADAMS Motor Graders

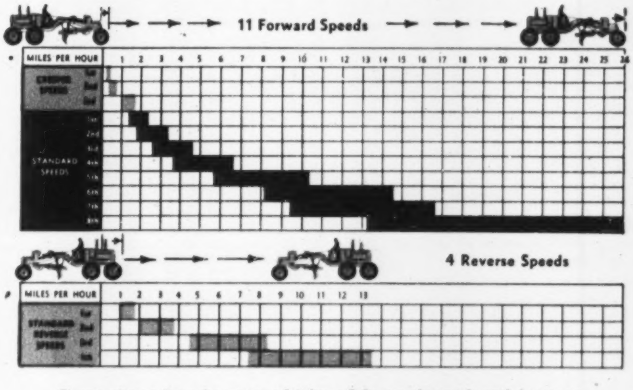
with New Constant-Mesh Transmission



The Missouri Petroleum Products Co. of St. Louis are black-top contractors. Recently they put four 100 h.p. Adams Motor Graders with the new Adams transmission to work on scarifying old asphaltic concrete pavements and mixing and laying oil mat as pictured above. Mr. S. A. Whitmore, Const. Supt. is enthusiastic about their performance—their wide range of speeds—the high reverse speed and the fast transport speed. Further he says "they have more power and traction; will push larger windrows at higher speed which results in more work per day."

Ask your local Adams dealer to show you one of these new, powerful machines. Phone him today.

J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS, IND.

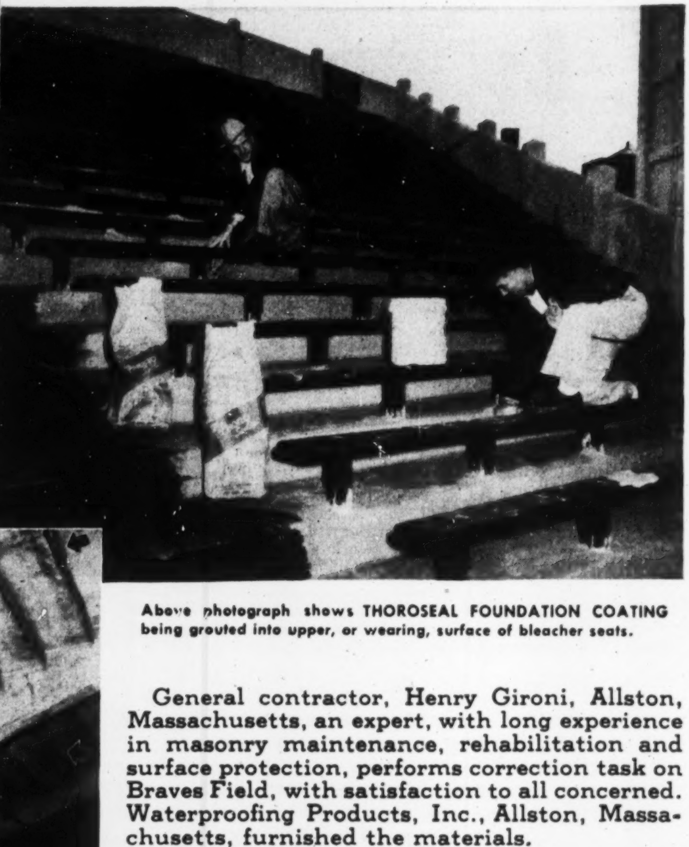


Charts above show the range of Adams 8 forward speeds and 4 reverse speeds which are standard in the new Adams constant-mesh transmission. At top are shown the 3 "creeper" speeds which are optional.

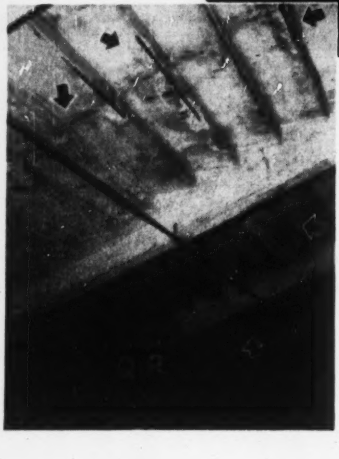
***Make your next motor grader an* ADAMS**

THOROSEAL
SCORES ANOTHER
HOME RUN
at the Braves Field

General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.



Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.



Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing rods. Rods were sandblasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.

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THORO System

Standard Dry 40th YEAR Wall Products

NEW EAGLE, PENNSYLVANIA

READER COMMENT

If we had to redesign the Chicago Roebling slab today, the base probably would be considerably shallower, but that should not be the main consideration. This slab has taken severe impact punishment and great differences of temperature and humidity during a period of six years without showing any damage.

The slab covers only about one-third of the building, while the other two thirds are covered by a slab built on conventional lines, with joints. This latter part is badly cracked.

This should prove the reliability of the system used for the prestressed part. The construction of jointless roads and runways should—if we can trust this single experience—not be out of reach.

L. Coff
Consulting Engineer,
New York.

CALENDAR

Tennessee Highway Conference, University of Tennessee, Knoxville, Apr. 16-17.

Pacific N. W. Industrial Wastes Conference, State College of Washington, Pullman, Wash., Apr. 16-17.

Surveying and mapping conference, University of Missouri, School of Mines and Metallurgy, Rolla, Mo., Apr. 17-18.

Connecticut Development Commission, annual conference, Hartford, Conn., Apr. 19-22.

N. Y. State Society of Professional Engineers, Hotel New Yorker, N. Y. City, Apr. 23-25.

National Engineering Conference, American Institute of Steel Construction, Engineering Societies Bldg., Detroit, Mich., Apr. 22-23.

Conference on residential air-conditioning, Packard Auditorium, Lehigh University, Bethlehem, Pa., Apr. 24-25.

Concrete Reinforcing Steel Institute, annual meeting, the Carolina Hotel, Pinehurst, N. C., Apr. 27-May 2.

Pacific N. W. Conference, ASCE, Seattle, Wash., Apr. 30-May 2.

American Water Works Association, annual meeting, Municipal Auditorium, Grand Rapids, Mich., May 10-15.

Conference on instrumentation in water, sewage and industrial waste treatment, Manhattan College, N. Y. City, May 14.

Society of Fire Protection Engineers, Palmer House, Chicago, May 21.

Society for Experimental Stress Analysis, Hotel Schroeder, Milwaukee, Wis., May 20-22.

American Society of Civil Engineers, spring meeting, Casablanca Hotel, Miami Beach, Fla., June 17-19.

National Society of Professional Engineers, Sheraton-Beach Hotel, Daytona Beach, Fla., June 18-19.

American Society for Engineering Education, annual meeting, University of Florida, Gainesville, June 22-26.

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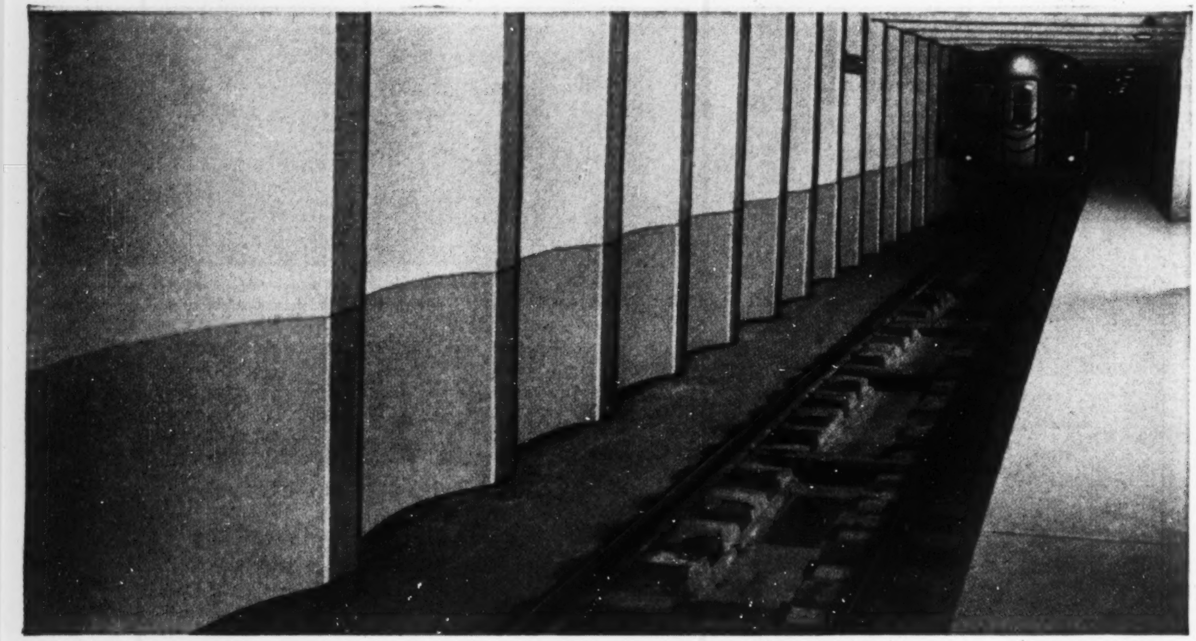
WOOD TIES IN NEW SUBWAY ARE PENTA TREATED FOR LONG LIFE

Modern, clean wood preservative specified by engineers to control tie rot and decay under tough conditions



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Dept. PE 3-42, Midland, Michigan

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☐ Plant wood treating specifications.
☐ Booklet, "Pointers on Penta."
☐ List of PENTA treating plants.

Name
Title
Company
Address
City State

Wood ties in Philadelphia's new Locust Street Subway are pressure-treated with PENTA*.

The specifying engineers on this big subway project selected PENTA because experience and records prove that it gives top results under tough conditions. PENTA will keep these wood ties strong and serviceable year after year by positively controlling decay-causing bacteria and fungi.

All wood lasts longer, serves better when it's protected against rot, decay and termites. PENTA provides this important protection plus giving a clean treatment. Workmen, too, like PENTA-treated wood because it's clean and easy to handle.

Write to Dow, Dept. PE 3-42, for more information about the modern, clean wood preservative, *PENTAchlorophenol. THE DOW CHEMICAL COMPANY, Midland, Michigan.

you can depend on DOW CHEMICALS

THE CONSTRUCTION WEEK

CONTENTS

April 9, 1953 Vol. 150, No. 15

Federal agencies speed budget review 21
Ohio River sewage treatment standards set 23
New antitrust approach to labor-management collusion 31
World's biggest sphere takes shape 32
Micro-straining proves worth in England 36
Greyhound digs for Chicago terminal 41
Controlling the troublesome Trinity 45
New playhouses for New York? 50
Concrete pins and rockers hold cantilever bridge in Paris 59
Rate of contract award gain tapers 101
Elevator system thinks for itself, even has memory 118

DEPARTMENTS

Reader Comment 10
Calendar 15
Washington Observer 19
National Affairs 21
Labor 31
News Pictures 45
Municipal 50
International 59
Obituary 68
Legal 73
Material Prices 74
Business and Finance 100
New Products 118
Editorials 128

- **Inhibitor inhibited**—That mine-acid inhibitor announced some weeks back by the Interstate Commission on the Potomac River Basin (ENR Feb. 12, p. 24), will remain under wraps for a while yet.

  Johns Hopkins researchers will begin field tests on April 13 to put their laboratory find through its paces. Any details on the inhibitor will await results of these field tests. According to pre-test data, the inhibitor will prevent pollution of streams from sulfuric acid formed in worked out coal mines.

- **Sewage works down drain**—Miami's $27.1-million sewage works plans are indefinitely postponed—and probably down the drain in their present form—as a result of that Florida Supreme Court decision throwing out the bond issue that would have financed the work.

  The court's ruling was based entirely on a legal matter—it found that First Boston Corp. could not act both as financial adviser to the city and purchaser of the bonds. But the effect of the decision has been to throw city officials into such confusion over their next move that they have cancelled plans for the moment.

  There's a political overtone in the confusion too: Dade County lawmakers have announced plans to introduce a new law that would abolish the Miami city government, consolidate the city with unincorporated areas of the county—to be administered by the county commission.

- **Good test**—The Army Engineers put their nearly completed Philpott Dam (on West Virginia's Smith River) through an unexpected but not unwelcome test when three inches of rain fell in the area March 23-24.

  According to the Engineers, the dam kept the river's rise below the reservoir to five feet—averting a flood similar to one that inundated the town of Bassett, Va., in June 1949.

- **Who's got the atom power?**—If you're confused about the prototype atomic power plant for submarines that started operating at AEC's Arco, Idaho, installation, and General Electric's tests on the same subject (see also p. 32), this much can be said:

  The plant started up in Idaho (known as S.T.R.) is a Westinghouse development as a possible power plant for the Navy's planned submarine. The plant to be tested in the huge steel ball at Schenectady will be GE's effort at the same thing. Westinghouse is experimenting with slow-speed thermal neutrons; GE with higher-speed ones.

- **More ore**—Inland Steel Co., reaching out for more iron ore to feed its blast furnaces, will spend about $50 million during the next seven years developing new mines 140 mi west of Port Arthur, Ont.

  Shipment of ore will start in 1960, eventually will reach 3,000,000 tons annually.

New International R-184 LOADSTAR with dump body. Features the entirely new 130 H.P. "Black Diamond 282" engine. GVW rating 21,500 lbs.

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The 168 basic *New* International models embody the engineering principles, used in International's continuing program of truck research and development, that have resulted in hundreds of exclusive International features that have meant greater profits for truck buyers.

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WASHINGTON OBSERVER

Peace in Korea will help balance the budget—But there won't be a big drop right away. The U.S. will still be paying for troops in Japan, for building up the South Koreans, for giving aid to Chiang in Formosa and the French in Indo-China.

Continued business expansion is expected—Whatever stretchout of military construction that may result may well be offset by civilian buildup in housing, roads, and even manufacturing to satisfy consumer demand.

•

Future construction of arms plants is at stake in the proposal floated by Secretary of Defense Wilson. His idea: Now that most of the post-Korea arms capacity is built, we should concentrate production of end-items in the most efficient plants, and moth-ball the others.

This would be a reversal of present policy as proposed by General Marshall and Charles (G.E.) Wilson right after Korea broke out, and adopted by Truman and his National Security Council.

If Wilson's proposal is accepted, it means closing down of many arms plants running at less than capacity rates of production. Critics say it also means that—if a war should break out some years hence—we'd have the same scramble we had at the outbreak of World War II.

Wilson believes that conversion of civilian plants to war output can be done quickly—and that we should give an incentive to civilian producers to build plants designed for speedy conversion to war production.

•

Legislation to block bid-shopping by government contractors is coming up for a hearing next week before a joint Senate-House committee. Judiciary chairman Langer is confining each side—the specialty contractors, and the general contractors—to four witnesses. The general contractors, who were solidly against the bill last year are reported to be split on it now. **Chances are a law will be voted.**

•

National Bureau of Standards is getting a shaking-up from Secretary of Commerce Weeks. Initial shaking came with the firing of NBS Director Allen V. Astin, for alleged "unobjective" testing of a product sold to extend the life of storage batteries (ENR Jan. 22, p. 96). Future shakeup is promised when Weeks' comes up with a complete re-examination of the bureau. Effect on construction could be great.

•

No pattern of building trades wage increases—such as contractors had under wage controls—is expected this spring. The AFL Building Trades look for higher wages in atomic construction and high-living-cost areas, but that's all.

AFL-CIO unity is not in sight despite the talk by union leaders. Building trades insist on controlling construction jobs in steel, autos and other CIO industries—and CIO chiefs won't make any such concession.

•

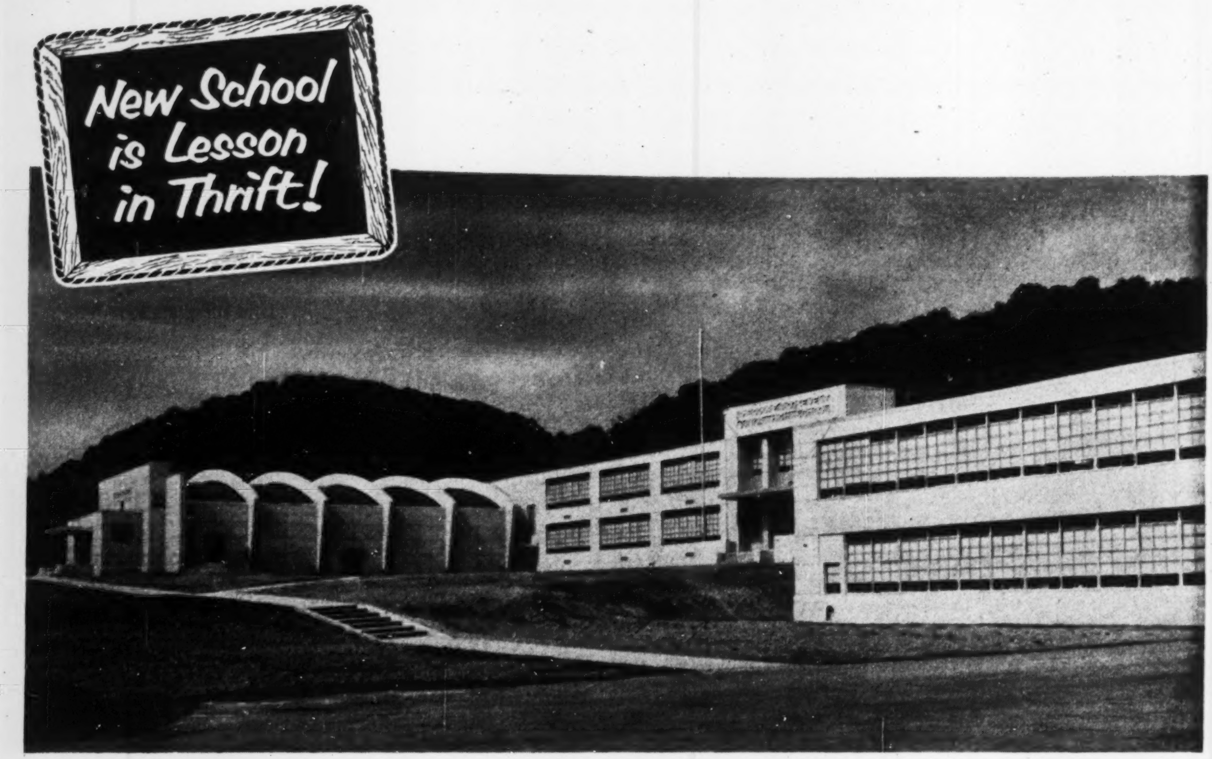
A thorough look-see into the nation's housing programs is guaranteed by the new Administration. Eisenhower's commission will look into what things should be done by the states, cities, or federal government. At the same time, housing chief Albert Cole will be looking into ways of tightening up the federal government's housing agencies and programs. Cole is against public housing, but will go along on a 35,000-unit program until a new policy is drawn.

Eisenhower would like to turn more responsibility to the states—The study will decide whether to shakeup housing programs developed over the past 20 years.

•

The mayors of cities are dead set against states taking over housing—and bluntly told the White House so. Shifting federal leadership to the states would slow down or stop housing and slum clearance programs in scores of cities.

Any turnabout will be slow in coming. The new commission and Cole are expected to come up with their answers next spring.



Contractor: Lundy Construction Company, Williamsport, Pa. Engineers: A. W. Lookup Company, Philadelphia, Pa. Architect: D. H. Grootenboer, Williamsport, Pa.

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Rates an "A" in Appearance

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Duraplastic aids proper placement with improved surface appearance because of its more workable, more plastic mix. It requires less mixing water for a given slump. And with Duraplastic, there's another big advantage — The air-entraining feature, originated and developed by Universal Atlas, minimizes bleeding or water gain and segregation. Thus the finished concrete is fortified against the effects of freezing-thawing weather.

YET DURAPLASTIC COSTS NO MORE. These advantages are yours simply by *specifying* Atlas Duraplastic. It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For more information, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Ave., New York 17, N. Y.

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APRIL 9, 1953
ENGINEERING
NEWS-RECORD

Federal budget cuts falling chiefly on proposed projects

Defense contract awards seen picking up sharply as jobs unfrozen by Army top $100 million

President Eisenhower's economy team is getting a grip on the 1954 budget. What has been done to date points to an overall budget cut of 10% below Truman's spending estimate of $78.6 billion for the next fiscal year.

Construction spending hardly will be cut that much. Most of the construction money goes to pay for work on continuing projects, but a reduction of 5% to 7% in cash outgo for federal construction seems possible for next year.

New projects are the items that will be most affected by the budget-cutting program. In its effort to trim federal spending over the next few years, the Administration is imposing stiff requirements on all agencies in justifying new starts for civil works. New military and Naval projects cannot be curtailed so drastically, but they are being re-screened to eliminate as many new contracts as possible.

• Army studies proposed projects—Military public works account for 25% of federal construction expenditures. The January budget estimate of military construction spending for fiscal 1954 was nearly $2.6 billion. Nobody in the Defense Department can make a guess today as to how much that figure may be cut.

The three military services and the Defense Department are intensively reviewing their construction programs in two categories: (1) Proposed new contracts not yet advertised or awarded, and (2) projects that were less than 20% complete on Feb. 10.

Action on proposed Army contracts gives the best indication so far of what to expect. According to report, the review board for the Secretary of the Army has been able to eliminate about 10% of the estimated dollar value of proposed new contracts. At the same time, the Army review staff certifies as essential some proposed new work that has not yet been funded out of available money by the Budget Bureau.

• Outlook for unfreezing good—After review by his departmental board, the Secretary of the Army submits the projects to the Secretary of Defense for final review and aproval. Up to the end of March, a total of more than $100 million of Army construction work had been cleared for advertising and award of contracts.

Army contract awards, of course, have fallen off during the review period. The same is true of contract awards for Air Force and Navy projects. District offices have to wait for notification from Washington of project approval by the Defense Secretary before they can advertise for bids. Once notice is received, they move promptly to invite bid proposals from contractors.

A total of $100 million in Army construction approvals within seven weeks after awards were frozen can be taken as highly encouraging. True, the actual awarding of this work has been set back two to three months or longer, but the volume released indicates that a rapid pickup in awards is possible.

Army construction awards amounted to $38 million in December and $30 million in January. For February, when the freeze first began to be felt, the reported awards fell to $18 million. March figures, now being compiled, are almost sure to show a lower total.

Release of $100 million in March will permit the Army within the next few months to regain some of the lost ground. The Army should be able to exceed its December award rate of $38 million.

• Army civil works faring well—No figures are available on new project clearances for the Air Force and Navy. If approvals come through in similar volume for those two services, they likewise will be able to step up their awards in future months. Air Force awards for February fell sharply to $92 million from $177 million in January, while Navy awards declined to $34 million from $51 million the previous month. For both services, the March figures are expected to be considerably lower than in February.

Civil works of the Army Engineers have not suffered as severely as the military construction programs administered by the corps. No lasting damage has been done to the construction schedules for flood control and navigation projects. Such delays as have occurred in contract awards will be cleared up this week or next. The few jobs that hinge on the revised 1954 budget (ENR March 26, p. 22) will have been approved or disapproved by April 13. The House Appropriations Committee has called the Army Engineers that day to start hearings on the 1954 civil functions budget.

• Hope for reclamation profits—Until Interior Secretary Douglas McKay submtted his department budget last week, there had been small hope for new project starts in 1954. But the revised Interior budget was reported last weekend to include two new starts on small hydro power plants at existing dams. If Budget Director Dodge approved those starts for the Bureau of Reclamation, he might do something similar for new flood control and navigation works of the Corps of Engineers. That, at least, was what construction observers thought.

Only three new starts had been requested for the Reclamation Bureau in the original budget of the Interior Department. McKay cut the original total of $607 million for all department operations by $54 million to a revised level of $553 million. A large part of the saving is to come out of reductions in personnel.

Chairman Ben F. Jensen of the House Appropriations Subcommittee handling Interior Department funds approved most of McKay's cuts. He scotched earlier reports that the Reclamation Bureau would bear the brunt of the slash. On the contrary, Jensen does not expect his group to make very drastic cuts in reclamation projects. But Congress is in a mood to trim the overall Interior budget to a lower figure than McKay asked.

• Big water projects doubt—There were thirteen new civil works projects of the Corps of Engineers in the Truman budget of last January. Some of these new starts seemed sure to be deferred in the budget-cutting process. Big targets for the economy ax were the Ice Harbor lock and dam on the Snake River in Washington, the Toronto reservoir in Kansas, the Warrior lock and dam in Alabama, and flood protection projects on the Ohio River at Wheeling, W. Va., and in the Sny Basin, Ill. The Budget Bureau takes the first crack at the thirteen new starts of the Army Engineers, but Congress will make the final decision.

Other budget actions show the way the economy wave is moving. The administration asked for 35,000 new dwelling units of low-rent public housing for 1954, equivalent to this year's level and 40,000 below the number requested by Truman. Congress is expected to cut the 1954 authorization to less than 35,000.

In the revised budget submitted by the Agriculture Department, loans for rural electrification in 1954 are cut $40 million, a reduction from $135 million to $95 million. Telephone loans are similarly reduced by $15 million, from a former figure of $65 million to a $50-million authorization.

Construction industry has big stake in new approach to antitrust cases

Building materials manufacturers, contractors, and building trades unions all are keeping an eye on the new chief of the Antitrust Division of the Department of Justice appointed by Eisenhower last week.

Reason: During the 20 years of Democratic rule, the Antitrust Division has given elements of the construction industry some pretty hard raps.

But under the Republicans, there's a lot of expectation that antitrust policy may undergo some changes that would make it easier to get along under the antitrust laws.

- **Political dynamite**—The new chief—California Judge Stanley Nelson Barnes—takes over one of the hottest spots on the Eisenhower team. The Democrats always figured they made a political asset of their antitrust policy—and they're waiting to see if they can't make a political asset of any easing of antitrust activity by the Republicans.

Right from the beginning, Barnes has to decide: (1) What to do about carrying forward the cases already on the books and (2) what kind of an antitrust policy to pursue from here on out.

In the past, antitrust activity has affected the construction industry generally through prosecution of building materials producers and suppliers, and on local levels, through enforcement of monopoly laws against contractor associations and labor unions.

If Barnes decides he doesn't want to continue a case after an examination, he has several alternatives. If it hasn't gone to trial, he can just call it off although in some cases such action could be political dynamite. Even after a case gets under way in court, though, the government could dismiss it, providing the judge consents. Or, both sides could negotiate a "consent decree." Such a settlement ends use of the evidence in a damage suit by a competing firm.

- **Pending cases**—These cases related to construction are not yet on trial and could be dropped by Judge Barnes:
- Cement Institute: Pre-trial conferences are scheduled this spring in Colorado District Court on charges filed in 1945 that the Cement Institute and 64 cement manufacturers eliminated all price competition through a nationwide multiple basing point system of selling portland cement. Trial would begin by the spring or autumn, barring new developments.
- Briggs Manufacturing Co.: Trial is expected in Michigan District Court this spring on charges filed in 1948 that Briggs and three other companies sold plumbing fixtures only to those buyers who also bought sanitary brass goods and would not deal in brass goods of Briggs' competitors.
- Harry A. Dubroy: Trial may begin this year on charges filed in Ohio in 1949 that Dubroy, one other person, 13 corporations and 28 co-conspirators fixed prices on hard building materials through circulation and exchange of cost information and price lists.
- Detroit Sheet Metal and Roofing Contractors Assn.: No trial procedure under way on charges filed last year that the association, nine contracting firms and 18 individuals eliminated competition in the built-up roofing contracting business through uniform procedures for computing bids, selecting one association member as successful bidder for a project, submitting unreasonably high bids to protect the designated successful bidder and other illegal practices.
- Northern California Plumbing and Heating Wholesalers Assn.: No court action yet in a civil suit filed in 1949 designed to break up the association because its members used it to fix and maintain prices on wholesale plumbing suppliers. Fines of more than $70,000 were imposed in 1950 against member companies in a companion criminal case.

Asphalt case

Turnpike body authorized to await new ruling before revising plans

The Ohio supreme court this week gave the state's turnpike commission a breather by ruling that it is not required to plan for asphalt construction until after the tribunal rules on an appellate court order requiring alternate-bidding (ENR April 2, p. 21).

It was announced that John Lansdale, the turnpike commission's counsel, would furnish briefs by April 18 and that Robert D. Hamilton, representing the asphalt interests who brought the action against the commission, would file by May 9. The court will hear oral arguments May 20.

Meantime, the turnpike commission has cancelled bids on 13 concrete paving contracts totalling $70 mililon, thus sharply curtailing work on the toll highway until the state supreme court rules on its appeal.

Bidding will be limited to bridge and overhead jobs, two of which were awarded last week. The Sandusky River Bridge contract was awarded to George Vang, Inc., of Pittsburgh for $1.8 million and the Huron River Bridge to Bates & Rogers Construction Co., Chicago for $1.7 million.

Despite the supreme court willingness to expedite the case, the holdup on paving contracts has already put the turnpike project considerably behind schedule. And, if the high court's decision upholds the alternate bidding ruling, it may be mid-October before all awards can be made. Originally, contracts were to have been let by the end of May. Completion of the turnpike could be delayed as much as eight months or more beyond the target date of November, 1954, according to T. J. Kauer, turnpike engineer.

Furthermore, if alternate bids are required, it is estimated compliance will cost the commission about $1.5 million. The added expense, according to commission spokesmen, would result largely from engineering costs for drawing up new plans and specifications to cover asphalt paving and for re-advertising of bids.

There will also be some loss on interest charges, but the amount is difficult to estimate at this time. Although the commission had only $206,000 in cash on hand as of March 31, it has some $306 million in short-term certificates, notes and bonds coming due at intervals up to December 1955. A delay in construction beyond the estimated completion time as a result of the holdup on bids is likely to cause cash holdings to pile up with a resultant loss on interest charges.

Orsanco's sewage treatment standards set for another 300 mi of Ohio River

Certain industrial wastes covered in proposals made by commission at Pittsburgh public hearing

Systematically laying the groundwork on which basin-wide river cleanup will be made, the Ohio River Valley Water Sanitation Commission held hearings last week in Pittsburgh on its proposed sewage treatment standards for the 300-mi. Pittsburgh to Huntington, W. Va., stretch of the Ohio.

Orsanco's recommendations were: Treatment of all sewage to minimum requirements of the compact (substantially complete removal of settleable solids and at least 45% removal of suspended solids).

- Additional treatment of sewage above Pennsylvania's Allegheny-Beaver County line to meet the Pennsylvania Sanitary Water Board requirements of 50% BOD removal.
- "Appropriate treatment of organic industrial wastes now being discharged directly into the river (such appropriate treatment to be defined at a later date)."

Orsanco also seeks 80% reduction of coliform organisms for the period May through October and 85% reduction from November through April, when flow is subject to greater deviations.

(For similar standards recommended and eventually adopted by Orsanco on the 60-mi Huntington-Cincinnati stretch see ENR April 17, 1952, p. 84).

• Eight-state compact—Studies leading to the proposed standards were made under the terms of the Ohio Rivery Valley Water Sanitation Compact which pledges eight states in the Ohio Basin to "take such action that the waters within the compact district shall be placed and maintained in a satisfactory sanitary condition, available for use as public and industrial water supplies, suitable for recreational purposes, capable of maintaining fish and other aquatic life, free from nuisances and adaptable to other legitimate uses."

Nine cities get their water supplies from the stretch of water covered in last week's hearing. The total population along the 300 mi is more than 175,000. Wastes now discharged have a 3,300,000 population equivalent, based on BOD.

Edward J. Cleary, executive director of the commission and its chief engineer, presented Orsanco's report at the hearing presided over by Ohio Commissioner Hudson Biery, chairman; West Virginia Commissioner W. W. Jennings; and Pennsylvania Commissioner E. A. Holbrook.

Preparation of the report was a joint enterprise of Robert K. Horton, staff sanitary engineer, and Harold W. Streeter, staff consultant.

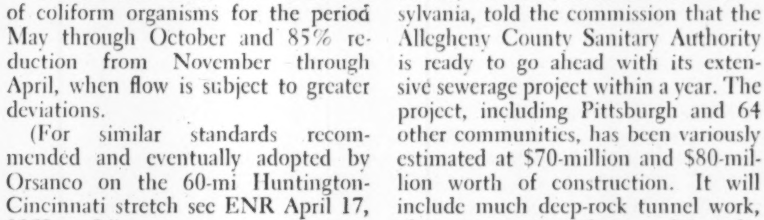
• Pittsburgh progress report—H. E. Moses, Orsanco member from Pennsylvania, told the commission that the Allegheny County Sanitary Authority is ready to go ahead with its extensive sewerage project within a year. The project, including Pittsburgh and 64 other communities, has been variously estimated at $70-million and $80-million worth of construction. It will include much deep-rock tunnel work, plus a treatment plant applying the revolutionary Laboon process for concentrating sludge (ENR Oct. 11, 1951, p. 30). This process now being designed into the works by Metcalf & Eddy has been claimed a means of cutting $4 million from first cost, $100,000 from annual operating cost.

Moses reported that final plans for the treatment works should reach his State Department of Health by August. He expects the entire system to be ready for use in the spring of 1957.

• Cincinnati speaks out—Testimony on the opening day of the hearing was presented by a Cincinnatian who urged Pittsburgh and other cities along the upper Ohio to get busy on the sewage problem.

He was Douglas K. Fuller, executive vice-president of the Cincinnati Chamber of Commerce, who said his city had made big strides toward whipping the sewage problem but needed help. He emphasized that Cincinnati couldn't get the full benefit of its work until other cities upstream accomplished something.

Fuller said his city has a $5-million treatment plant nearing completion (the Little Miami plant) and another that is now in the design stage (Mill Creek).



EVERY DOT A SOURCE OF POLLUTION—and these are only the cities along the Pittsburgh-Huntington stretch of the Ohio River. Industries on the river generally are not yet affected by standards being set.

Raritan trunk sewer hung up on new snag

Rumblings on the Raritan—one of New Jersey's and the nation's most polluted streams—spelled possible trouble last week for the planned $22.5-million Middlesex County Sewerage Authority trunk sewer project.

A "highly successful" meeting between the upstream Somerset County Citizens Committee and officials of the city of New Brunswick was held in Somerville.

The Somerset County group of towns and industries pulled out of the original $30-million, valley-wide project and hired their own consulting engineers last fall (ENR Oct. 16, 1952, p. 26). Recent indications, that now New Brunswick (biggest city remaining in the revised Middlesex County project) is not entirely satisfied with the project, seemed confirmed by last week's meeting requested by Mayor John A. Lynch.

Views were exchanged informally by the two groups and New Brunswick officials were talking: (1) Regional solution of the pollution problem by a state appointed authority and (2) inseparability of water supply and pollution problems.

These two factors are major arguments of the Somerset group against the trunk sewer project. High in the valley as they are, these industries and towns express concern over water supplies which could be depleted by keeping all effluents out of the river and in a sewer.

The principal outcome of last week's meeting was a plan to meet again after the report of consultants to the Somerset County group becomes available. The final report (by Whitman, Requardt & Associates and Sheppard T. Powell, both of Baltimore) reportedly is due in about three weeks. No action by either group can be expected in the meantime.

CONFERRING at the Irrigation Districts Association of California convention in Sacramento were, left to right, Thomas B. Waddell, assistant state engineer; E. C. Marliave, state water resources division engineer, and Philip A. Gordon of Fresno, retiring president of the association.

Broader irrigation financing asked

California association also recommends putting state water agencies under single department

A proposal to make irrigation-district construction bonds legal investments for savings banks is reported to be getting a favorable reception among California legislators.

Reporting on the proposal at the annual convention of the Irrigation Districts Association of California, Robert T. Durbrow, secretary-treasurer, declared that the measure, if adopted, would broaden the market for district bonds and lead to lower interest rates.

The association, meeting in Sacramento, voiced its support of pending legislation to establish a single department for all California state water agencies. It went on record against legislation designed to permit labor unions to organize irrigation district workers. And, it opposed a bill that would require advance public notice of district meetings.

Officials of the State Division of Water Resources, including State Engineer A. D. Edmonston and Thomas B. Waddell, assistant state engineer, were among the speakers. They discussed the inquiry being made into the chances of the state's buying the Bureau of Reclamation's Central Valley Project—on the installment plan if possible (ENR April 3, p. 17). The state officials also talked about the possibility of a revenue bond issue for construction of a $1.2-billion irrigation-power project on the Feather River near Oroville. (One of the numerous public works financing proposals before the California legislature is a public works reserve fund act designed to pool credit for the financing of projects undertaken by public agencies. Conceivably, the Feather River project could be financed by this means if the proposed legislation is adopted.)

E. C. Marliave, also an engineer in the Division of Water Resources, discussed the statewide effect of earthquakes.

Abner M. Crowell of Turlock was elected president of the association to succeed Philip A. Gordon of Fresno.

Durbrow was re-elected secretary-treasurer and G. R. Haris of Riverdale was named vice-president.

Licensing laws

Colorado legislates new engineer-architect acts following court upsets

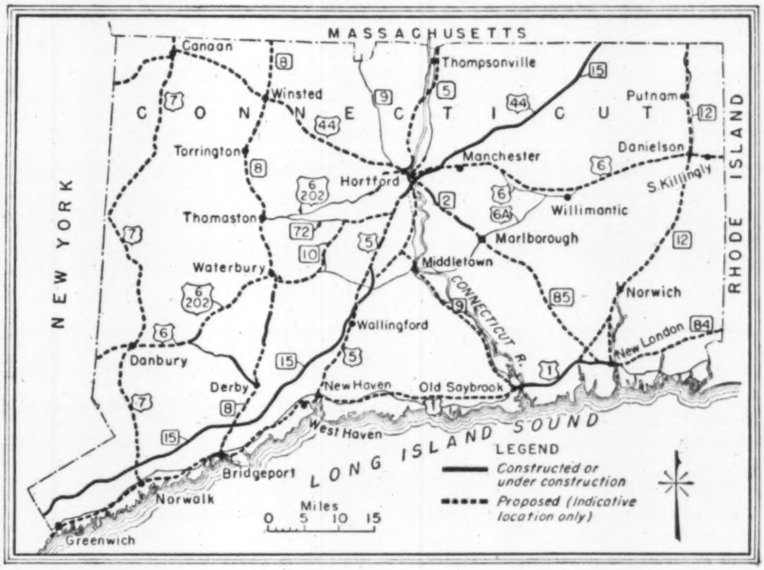
New measures governing the examination and licensing of engineers and architects were passed by the Colorado state legislature just before a midnight adjournment of the session.

Passage of the two laws had become urgent business as a result of two recent court decisions holding previous legislation unconstitutional on the ground that it delegated legislative powers to state examining boards (ENR March 19, p. 23). The new measure, supported by engineering societies in Colorado, establishes exact examination subjects and does not grant any powers of discretion to the State Board of Engineer Examiners. The Colorado Supreme Court ruled that the 1951 law granted legislative powers to the board and also that it set up classifications of engineers illegally. There is no classification in the new legislation.

None of the 1,650 registered engineers in Colorado is affected by the new legislation. It prescribes exact subjects for the engineer-in-training and professional engineer examinations. The board will draw up questions under the subjects listed. Registration without examination is authorized if a person more than 35 years of age shall have had 12 years or more of lawful practice. It provides that at least four of those years must be practiced under the applicant's own license. Examinations must be conducted once a year in Denver.

• Act covering architects—The legislature also adopted a new measure revising the procedures of the State Board of Architect Examiners. A 44-year-old law which governed registering of architects in Colorado was ruled unconstitutional in a Denver district court last month because it granted legislative powers to the board.

The architects' measure, supported by registered architects, continues to provide for an examining board of five architects and sets up eight specific subjects for examination. The old law did not define examination procedures in detail and gave wide discretionary powers to the board. Other legislation, backed by those denied licenses in recent years, was rejected. It contained a "grandfather clause" which would have permitted anyone who has "held himself out" as an architect for one year of the last five to obtain a license automatically within six months after passage of the law.



Connecticut plans expressway network

Initial project to be a $200-million toll highway crossing state from New York to Rhode Island

Legislation providing for a $400-million network of expressways in Connecticut was having smooth sailing in the state's General Assembly this week.

Of immediate interest is the impending authorization for a $200-million bond issue to finance as a toll project the proposed cross-state thruway from the border of New York State to the Rhode Island line. With legislative support assured, Gov. John D. Lodge already has appointed a special committee to confer with Rhode Island officials on the link-up.

Receiving simultaneous consideration are long-range plans for developing the existing system of major state highways into a comprehensive network of expressways. This program would be carried out over a period of about 10 years and cost an estimated $200 million. However, at this session only the cross-state thruway financing will be acted upon.

The cross-state thruway consists of two projects. One involves construction of the controversial Fairfield County Thruway as a relocation of Route 1, which will be a shoreline route from Greenwich at the New York line to West Haven (see map).

This section of the proposed thruway has been the subject of legal action brought by Fairfield County citizens' groups objecting to the taking of shoreline property. Their challenge to the state highway commissioner's authority to build the thruway as a relocation of Route 1 was voided by a recent Superior Court decision (ENR March 12, p. 28). An appeal has been filed with the Connecticut Supreme Court but apparently the latest legal move is not deterring legislative handling of the program.

The second element of the thruway project is the so-called eastern Connecticut extension. It will connect with the Fairfield County Thruway at West Haven and run to the vicinity of South Killingly at the Rhode Island line, linking up with U. S. Route 6.

Long-range plans of State Highway Commissioner G. Albert Hill would give the state four north-south and three east-west expressway routes with connecting links. In the northeast corner of the state, the system would link up with the proposed Massachusetts thruway.

Development of the proposed expressway network would involve extensions and improvements of virtually every major state highway. The scheme would include the Merritt Parkway, the Wilbur Cross Parkway, and other existing superhighways.

Toll financing is expected to play a big part in Connecticut's ambitious highway development program and, to this end, pending legislation provides for use of surplus toll receipts as a sort of revolving fund for financing new projects.

As a start toward implementing this principle, the legislature is being asked to increase from five to ten cents the toll on the Charter Oak Bridge across the Connecticut River at Hartford. This toll was decreased two years ago because the income exceeded the amount necessary to retire bonded indebtedness on the bridge. Thus, a return to the 10-cent toll should insure a sizable surplus for use in financing other work.

Two bridges sought for San Francisco Bay

San Francisco's city attorney Dion Holm is drafting legislation which will call for simultaneous construction of two bridges across the bay—one parallel to the existing crossing to Oakland and one father south.

A resolution calling for the legislation was adopted by a committee of city officials, headed by Mayor Elmer Robinson, despite the fact that the city's engineering experts rejected the two-bridge idea in favor of building a southern crossing first.

The legislation will be presented to a committee of East Bay officials for their approval, then to the state toll bridge authority, the boards of supervisors of San Francisco and Alameda Counties, and to the state legislature before it adjourns June 10.

Whether to recommend one bridge or two, and where, had brought city officials to a deadlock. The action finally agreed on was a compromise, since San Francisco has favored the southern crossing, while Oakland wanted the twin span.

Even if San Francisco's proposal is accepted, the financial problem will still remain to be solved. The legislation will call for starting construction on both bridges at the same time, a project that will cost some $410 million. A condition of the program states that financing must be done entirely through revenue bonds, without resorting to any taxes on real-property owners. The income tax from the San Francisco-Oakland Bay Bridge would be pledged to pay for interest and redemption of bonds. If financing cannot be handled, the San Francisco plan calls for building the southern crossing first and the parallel bridge later.

Canadian Air Force builds $23.5-million supply base

The Royal Canadian Air Force is constructing a $23.5-million supply base at Namao, near Edmonton, Alta., to back any defensive operations which may be fought in the Far North.

About $7 million already has been spent at the big air base. A similar RCAF supply setup is being built at Downsview near Toronto, Ont.

Bridge built of precast pumice concrete

Idaho span of three 40-ft single lanes costs under $10,000; members about half usual weight

Pumice concrete was precast into beams and road deck for a highway bridge in Blaine County, Idaho. The members weigh about half of what they would have weighed if made of ordinary sand-and-gravel reinforced concrete.

Built for less than $10,000, the bridge is made up of three 40-ft single-lane spans, designed for H20 loading. Each span consists of two beams spaced 8 ft on centers and 5-ft 8-in. x 16-ft deck units placed with the long direction transverse to the beams.

The beams are 14x36 in. in cross section but weigh only about 5½ tons. Precast at the site, they were erected with a ⅜-cu yd crane, carefully counterbalanced to prevent overturning. Supports are timber piles with pumice concrete caps.

The deck units are channel shape in cross section. They consist of an 8-in. thick slab and two 6x13⅝-in. joists. They weigh about two tons apiece. Matching metal plates on the joists, beams and pile caps were welded together when the units were assembled.

The 1:2:3-mix used contained 6.6 sacks of cement per cubic yard plus two accelerating agents and had a water-cement ratio of 0.5. Despite casting at subfreezing temperatures, the concrete attained strengths of about 2,000 psi in 10 days and 2,500 psi or better in 28 days. The water was heated, and the green concrete was insulated with pumice, which was placed on top on paper and around the forms.

William W. Wood, production manager of Westates Pumice Co., Boise, Idaho, the firm that supplied the pumice and supervised the job, estimates that 80% of the heat of hydration of the cement was retained, aiding in the curing and preventing frost damage.

Mined locally, the pumice is a flow-lava froth with a fibroid structure. It contains elongated voids, and the glass composing the intervening spaces between bubbles shows strong flow lines. Fracture normally occurs along these lines rather than across the bubbles. This characteristic, which holds even for particles as small as 48-mesh, is credited with contributing to the high quality of the concrete. Normal pumice, Mr. Wood contends, does not develop it beyond the 14-mesh range.

Earl Reynolds, Jr., of Cornell, Howland, Hayes and Merryfield, consulting engineers, Boise, Idaho, designed the foundation and beams.

DECK SLAB (below) and 40-ft beams (right) for a bridge in Idaho were precast of high-strength lightweight concrete.

Demands for rainmaking service seen increasing

Water Resources Development Corp., major "rainmaking" firm in the Rocky Mountain area, has claimed outstanding success in its third year of cloud seeding over the South Platte watershed, which serves Denver.

Irving P. Krick, president of the Denver firm, said that as a result of cloud seeding with silver iodide generators, the snowpack in the South Platte watershed on March 1, 1953, was 116% of normal, compared with 72% of normal for the Rio Grande watershed, 71% for the San Juan watershed, and 80-99% for other watersheds in the Rocky Mountain range.

The rainmaker said results this year would have been even better but for the mild winter. "Because of the relatively high temperatures, a lot of snow laid down before March 1 had melted when measuring time came around," he said.

Krick reports that, as the science of cloud seeding gains wider understanding, "we are finding increasing interest on the part of industry. We are working on several hydroelectric projects both here and abroad."

Whether Krick's method is responsible for the favorable South Platte watershed snowpack is still a matter of controversy. Earl L. Mosley, secretary-manager of the Denver Water Board, commented: "It's pretty hard to say what caused the snow. The snowpack is fair, and the firm has some rather plausible diagrams; but it's one of those intangible things."

However, directors of the Northern Colorado Natural Resources Assn., apparently were impressed by Krick's snowmaking on the headwaters of the Cache La Poudre, Big Thompson and St. Vrain Rivers last winter. They voted on March 24 to extend to May 1 the firm's cloud seeding contract.

Arkansas revises contractors' bond provisions and engineer licensing law

Legislature creates a new state purchasing authority—approves toll financing for bridges but not roads

The biennial session of the Arkansas legislature this year did a major overhaul of laws affecting contractors and engineers and revamped the state's purchasing methods.

Among the major legislative actions were:

- Replacement of a 28-year-old law governing registration of professional engineers with a new and stiffer code of licensing.
- Revision of provisions for surety bond coverage by contractors.
- Approval of toll financing for river bridges but not for turnpikes.
- Creation of a new Department of Finance and Administration to control all state purchasing.

• Engineer licensing—For the first time since 1925, repealing all of the old regulations except the provision for a five-member board of registration for professional engineers appointed by the governor. The new law, effective June 10, sets up provisions for certification of a new classification—engineer-in-training.

To apply for an engineer's certificate, one must be a graduate of an engineering school or college approved by the board and must have had four years' active experience of a type satisfactory to the board (graduate study is acceptable as the equivalent of a year's experience) or must have had eight years' experience. The old law required four years' experience, with graduation from an engineering school considered the equivalent of two years' experience. An applicant for an in-training certificate must be a graduate of an approved engineering school or must have had four years' experience.

Under the new law, the board may waive examination of an applicant registered in another state, territory, or foreign country only if the qualifications are not less than required in Arkansas. Under the old law, the board could simply arrange for reciprocal registration of professional engineers under mutually agreed terms.

Maximum fees are raised from $15 to $35 for an engineer application, from $10 to $25 for an engineer certificate and from $15 to $25 for engineer annual renewal. For in-training, fees are $10 for application, $5 for certificate and $10 for renewal. All certificates are renewable January 1.

The board is authorized, for the first time, to apply for court injunctions to restrain persons from violating the act.

• Defines engineering practice—The act defines the practice of engineering as excluding persons who merely operate or maintain machinery or equipment. It also excludes non-creative, non-professional work performed in measuring land or drawing or reading plans, or other work normally done by mechanics, technicians, land surveyors or draftsmen.

A firm or association may engage in engineering as a profession only through its officers, agents or employees and then not unless one of the owners or incorporators is a registered engineer. Such an organization may engage in the practice or engineering with relation to its own property or business if the work is supervised by a registered engineer.

Violation of the act is a misdemeanor punishable by a fine of $100 to $200 and up to three months' imprisonment. The minimum fine was $10 under the old law.

• Contractors' bonds—Contractors on public works projects costing more than $1,000 are now required to furnish bond equal to the amount of the contract. Formerly this was required on jobs over $100. Previously, on public works costing more than $10,000, contractors had been required to furnish bond to double the amount of the contract.

Road fund study set

Highway financing will get a thorough congressional going-over in hearings to start April 14 before the McGregor subcommittee on roads in the House.

State governors will have an opportunity to testify first on their proposals that the federal government relinquish gasoline taxes to them and curtail the activities of the Bureau of Public Roads.

Then, the committee will look into federal aid for toll roads, more money for the interstate system, federal participation in highway maintenance, allocation methods for access roads, road building on public lands, and the effect of heavy vehicle traffic on highway costs.

On projects costing more than $1,000 for religious and charitable organizations contractors now are required to furnish bond equal to the amount of the contract. Previously, the bond for such projects had been double the amount of the contract.

The new law provides that any person, firm, corporation or association may make the same requirement of contractors, without regard for amount, as long as the bond is for an equal sum. It provides that bonds be with surety companies and makes the condition that the contractor pay all indebtedness. It authorizes action against a surety within six months from date of final payment on contract. As before, contracts executed by the state highway department are exempted.

• Control of purchasing—The new Department of Finance and Administration takes over the functions of the Fiscal Control Board of the purchasing agent and most of those of the comptroller.

The new department will operate a perpetual inventory of all state equipment and will control purchasing for all state agencies either by actual purchase or through regulation. Governor Cherry called the change "the keystone" of his legislative and administrative program. Probably it will increase state tax revenue through a tighter collection system.

• Highway policies—The State Highway Commission was authorized to issue revenue bonds for construction of river toll bridges or ferries. The move was to clear the way for possible construction of toll bridges across the Mississippi River at Helena, Ark., and across the Arkansas River between Little Rock and North Little Rock. A measure authorizing the commission to issue revenue bonds for toll turnpikes was defeated.

Highway authorities of the state, counties and municipalities were authorized to plan, designate, establish and maintain "controlled access" facilities designed for through traffic. (This was merely to confer legal authority for banning access except at desired points.)

The State Highway Commission was directed to assess 50% of the cost of acquiring property for roads on the state's secondary system against the counties where the land is located.

On the theory that heavy trucks are damaging highways and should pay more tax toward highway maintenance, the motor vehicle fuel tax was revised. The old law assumed trucks got 8 miles per gallon of fuel and were taxed accordingly; the new law taxes on the basis of 5 to 12 miles per gallon, depending on gross loaded weight.

The use of state highway forces and equipment on county roads was authorized, with counties to pay the state on a contract basis.

Sand or gravel used for highway purposes was exempted from the state sales and severance taxes when purchased by the highway department from land owners.

• **Highway appropriations**—The legislature made little change in State Highway Department appropriations, allocating $31,020,300 for 1953-54 fiscal year operations and $33,520,300 for 1954-55. The 1952-53 total was $30,000,000. However, the legislature appropriated $9,500,000 in supplemental funds for State Highway Department construction for the rest of the fiscal year.

The highway department operational appropriations included $4,650,000 in '53-'54 and $4,900,000 in '54-'55 for maintenance; and $19,700,000 in '53-'54 and $21,700,000 in '54-'55 for new construction.

The salary of the highway director, a position still unfilled, was increased from $7,500 a year to $15,000. The salary for Chief Engineer, a position now held by A. E. Johnson, was raised from $6,500 to $10,000 a year.

Other highway department appropriations were $17,579,938 in 1953-54 and $17,233,680 in 1954-55. For bond service requirements and $1,500,000 annually for the county highway construction fund.

Major appropriations for other public works, primarily construction and repair of buildings, totaled $5,087,900 for the next biennium.

• **Municipal**—The legislature authorized city councils to install parking meters by ordinance, subject to referendum if opponents so request. Previously, parking meters could be installed only by popular vote.

Cities of more than 75,000 population received permission to adopt "home rule" charters which would give them powers now held by the legislature. The act authorizes city councils to name a charter commission with nine or more members to draw up the proposed new charter for submission to the electorate. City councils in major cities were authorized to create commissions for municipally owned water, sewer and/or light plants.

20-year road program voted for Colorado

Four bills starting Colorado on a 20-year highway program were approved and signed by the governor. But no appropriations were made for this long range plan, which has been urged for four years by the governor's planning committee. There are reports a special session will be called late this year to consider appropriations, which are contingent on increased taxes that would be imposed mostly on trucks.

The highway laws establish a new system of state, county and city highways and allocate responsibility for their maintenance; create a single highway user tax fund to receive all highway revenue; continue existing four- and two-cent per gallon gasoline taxes until Dec. 31, and then combine the taxes into a single six-cent-per-gallon tax.

• **New taxes adopted**—Colorado's current highway budget covering the period Jan. 1 to June 30, 1954, when it goes on a June 30-July 1 fiscal year, is $38,136,970 of which $26,465,691 is for construction. The highway budget for the 12 months ended Dec. 30, 1952, was $28,537,461 of which $20,940,799 was for construction. The Colorado highway budget is drawn up by a commission appointed by the governor.

• **Highway plan authorized**—Construction appropriations by the legislature are headed by $500,000 for a new dormitory at the State Mental Defectives Home at Ridge, near Denver; $250,000 for a new motor vehicle department building at Denver and $750,000 for a new heating plant at the state hospital in Pueblo.

During its 81-day session the legislature adopted a tax on oil and gas production for the first time.

Substantial raises were voted in workmen's and unemployment compensation. The Republican-dominated assembly killed a so-called "right to work" bill which labor spokesmen called "anti-union."

A $100,000 appropriation was voted for a comprehensive survey of Colorado's water resources and potential demands—the first compilation of all data on the state's water.

The legislature also adopted new measures governing examination and licensing of engineers and architects (see p. 24).

World's largest iron blast furnace poses difficult foundation problems

Arthur G. McKee & Co. faces some difficult foundation problems in building the world's largest merchant iron blast furnace at the Central Furnaces & Docks plant of U. S. Steel's American Steel & Wire Division in Cleveland.

The furnace, 106 ft. high with a 26-ft. hearth, will weigh 11,000 tons. The project, including auxiliary facilities, will cost an estimated $10 million. Construction, scheduled to begin soon, will take about 14 months.

Plant site is the Cuyahoga Valley, where earth is of clay, gravel and water-holding sand. In drilling to a depth of 150 ft in seven critical load spots some 150 earth samples were taken in various levels. Clay samples were given shear tests at the soil testing laboratories of the University of Michigan to determine friction value.

"It has been determined that for the entire project, including new buildings and equipment, more than 1,000 piles will have to be driven into the ground," reports a McKee official. "Inasmuch as each of the piles is figured to bear a 60-ton share of the load, they will have to be driven as deep as necessary to reach firm holdings on which to base the underpinnings."

The company says that, while a solid bedrock exists at the minus 150-ft level, experiments are being carried on with the aim of developing methods to establish the foundation on a stratum of clay at minus 70 ft.

McKee's contract covers the major part of the complete blast furnace installation, consisting of the furnace, three stoves for preheating the blast to about 1400 deg F., stockhouse and handling equipment, foundations, air and gas mains and utilities.

Air and water pollution equipment is in the design. Speaking of these, the company declared: "A primary water gas washer and a secondary electrostatic gas cleaner will remove ore and coke dust from the gas coming on the top of the furnace before it is re-used to heat the stoves and underfire the boilers. Millions of gallons of water used in cooling the furnace and washing the gas will be cleaned in special sludge removal equipment to return water to the Cuyahoga River cleaner than when it was taken out."

The furnace will have a capacity of 1,350 tons per day, raising daily pig iron production in Cleveland to approximately 12,000 tons.

McKee has built seven blast furnaces in the last two years. Two 1,500-ton capacity furnaces were built for the U. S. Steel's Fairless works at Morrisville, Pa.

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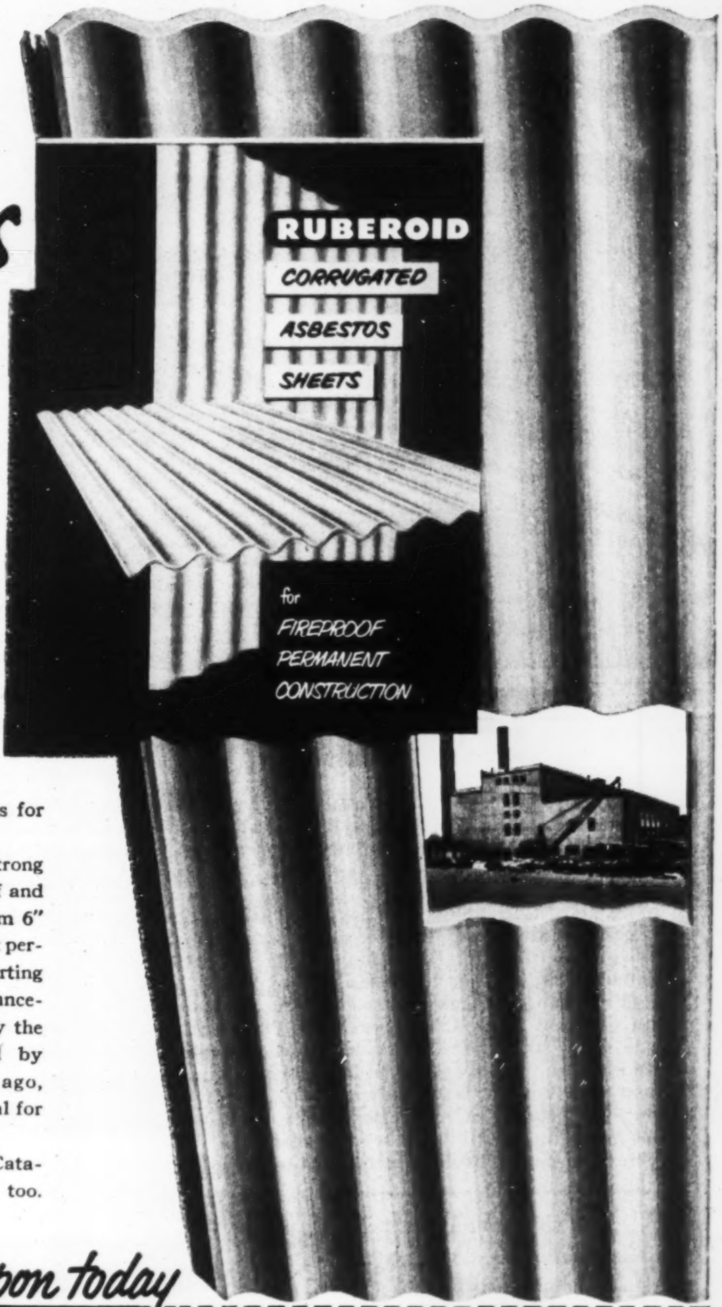

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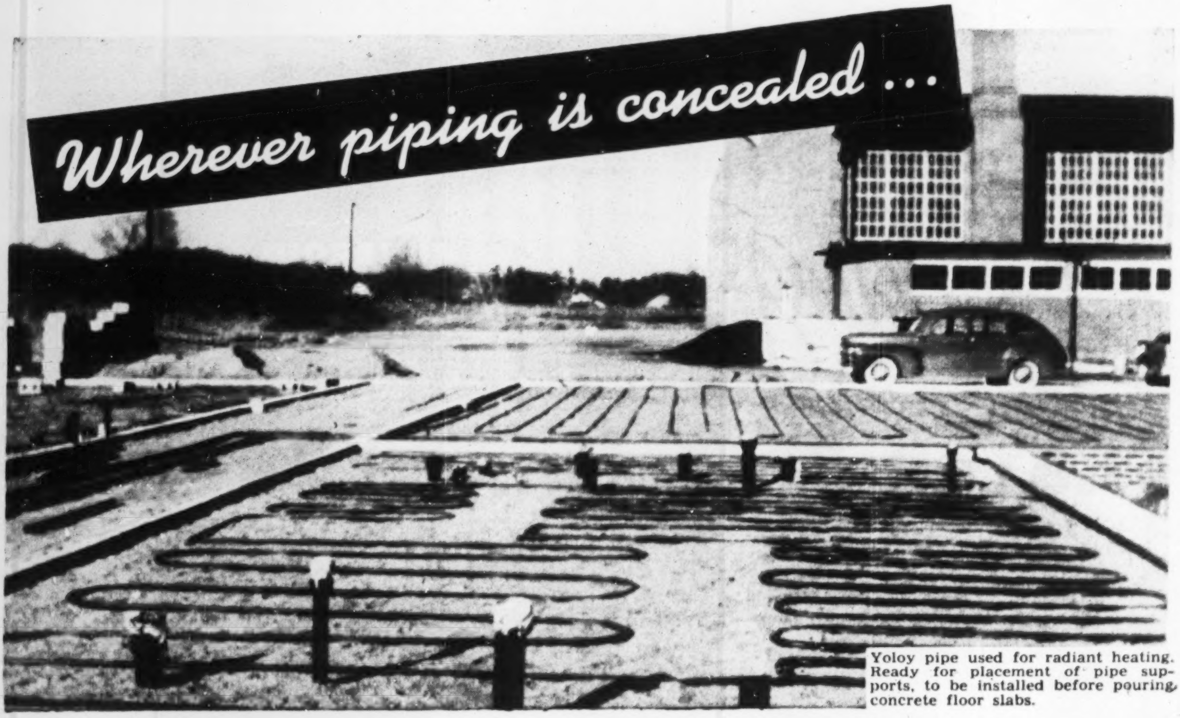

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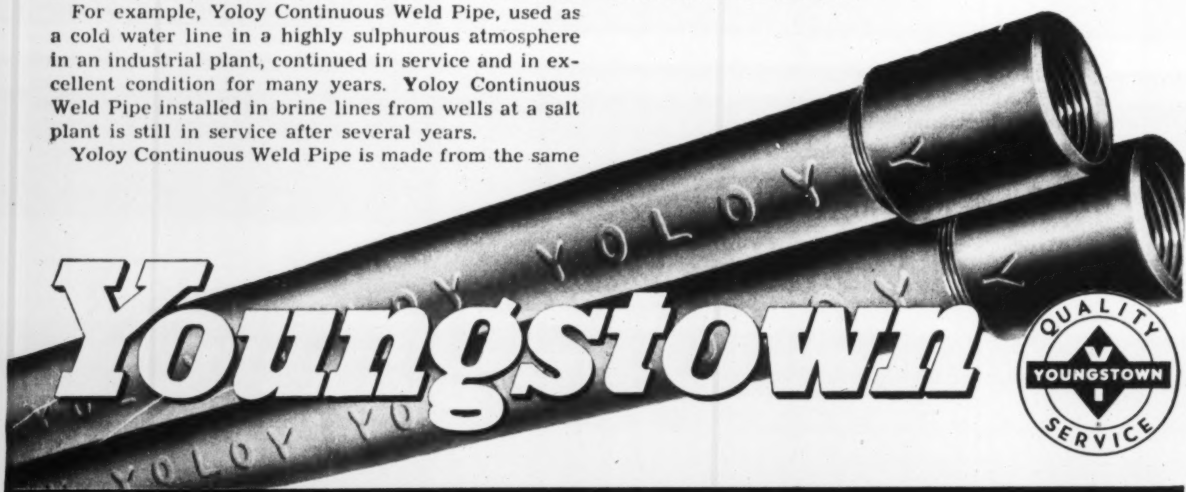

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Collusion cases

New anti-trust head has 4 construction cases of labor-industry collusion.

Judge Stanley Barnes handling of cases of collusive practice between unions and contractors will be the tip-off on what to expect of the Antitrust Division of Justice Department when labor and management are accused of combining to create monopolies.

Four cases are almost ready for hearings and decisions: Of the four: one case is being appealed; one case is up for sentencing and two cases are being moved to trial. Here are the cases:

- Las Vegas Merchant Plumbers Assn.: A plumbers union leader, two businessmen and the association are appealing fines totaling $35,000 and jail sentences imposed by a Nevada District Court for fixing prices on all plumbing and heating supplies sold and the charges to be made for installation.
- Minneapolis Electrical Contractors Assn.: On Friday (Apr. 3) the Minneapolis District Court was to sentence three associations, two labor unions, and eight individuals (from electrical equipment jobbing and electrical contracting firms) for illegal distribution of electrical equipment. Defendants used boycotts and threats of boycotts to see that electrical equipment went from manufacturers only to jobbers, from jobbers only to electrical contractors, and from these to consumers.
- Chicago Employing Lathers Assn.: Lawyers are moving preliminary motions on charges filed last summer that the association, the AFL lathers union and two contractors conspired to limit and reduce the number of lathing contractors in the area and thus create a monopoly for themselves.
- Chicago Employing Plasterers Assn.: Identical status as lathers case and involving similar charges against the association, the AFL plasterers and the union president.

Tucson carpenters return

About 150 carpenters in the Tucson, Ariz., area have returned to work after a month's absence in a dispute with contractors over daily travel pay.

The return followed a superior court restraining order against business agents of the union brought by two contractors' associations and four Tucson contractors.

Union rejects pay rise

Union plasterers in the Little Rock, Ark., area recently turned down a 37½-cent-an-hour pay rise a few days before it was to go into effect.

"We talked at length with contractors about the raise for plasterers," Robert E. Crouch, union business agent, said, "and they thought we had little to gain from it.

"It would encourage more use of plaster substitutes . . . and cut down on our work.

"We decided to go along with the contractors in an attempt to keep building costs from going higher. It is an experiment and the outcome will be determined by the amount of work we get."

Voting time off abused, California AGC declares

The construction industry has urged the California legislature to correct the abuses arising from a U.S. Supreme Court decision that workers in the state are entitled to two hours off with pay each election day to vote.

John Synon, representing the Associated General Contractors, appeared before the State Assembly Committee on Elections to protest the law.

Actually the law has been on the statute books for 60 years but, Synon said, it did not develop into a problem until recently when the court decision was handed down.

Previously the law had been interpreted to mean workers were to leave their jobs to vote only when they could not go to the polls on their own time.

Synon pointed out the court's ruling gives workers the right to leave their jobs for two hours at any time they want on election days.

"The confusion is so great," he asserted "the construction industry is about reconciled to shut down for the day."

Al Maillaux of San Francisco, vice-president of the California Building Trades Council, said union leaders are attempting to prevent trouble. He said his organization was opposed to any radical change in the law but would be agreeable to an amendment which would require that no person could leave his job unless he was registered to vote. "We should do everything possible to induce people to vote," he contended.

Omaha strike

Nebraska city is hit by wage dispute strike of operating engineers

Construction work on Omaha, Neb., building projects totaling more than $25 million was tied up by a wage dispute between building trades unions and the Associated General Contractors.

Stopped by the strike were the $17 million power plant of the Omaha Public Power District, the $6-million Omaha city auditorium project, plus hospital and sewer jobs.

In addition, Omaha Home Builders Assn. members cooperated with the AGC by shutting down operations.

Work on the $250-million Omaha outer drive and the $1-million reservoir of the Metropolitan Utilities District will not start until the dispute is settled.

- **The strike**–The dispute involves eight crafts, but the actual striking union is the operating engineers union. The contracts of all eight unions expired on April 1.

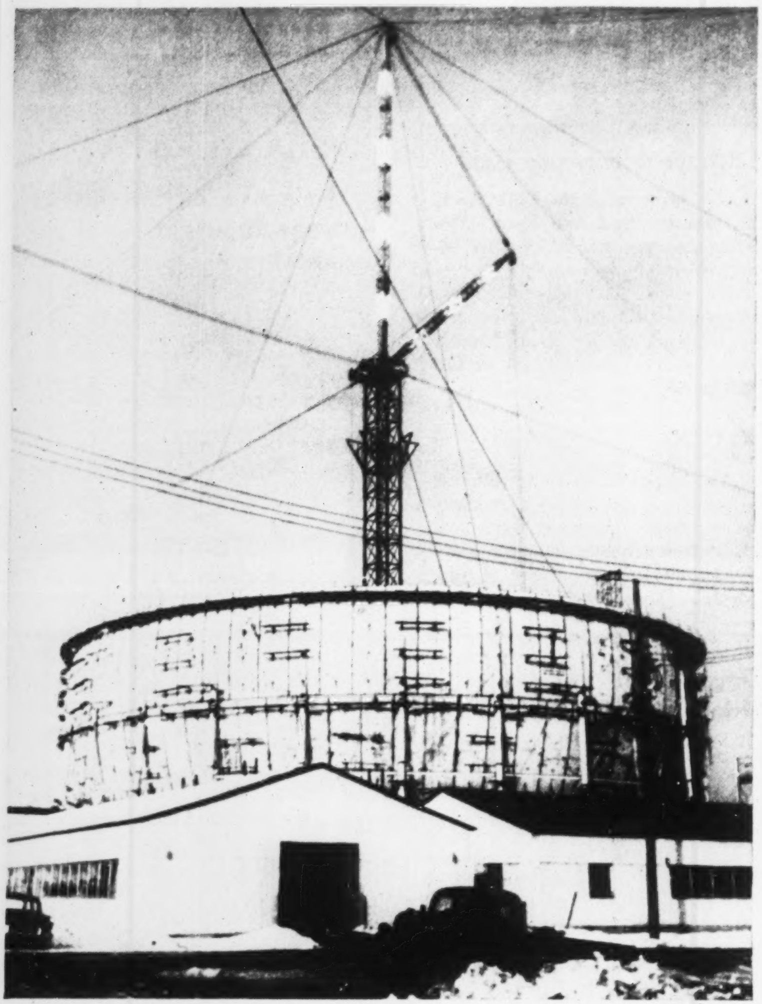
Three unions have accepted AGC's offer of a 20-cent-an-hour increase. The unions and the accepted scale: laborers, $1.80; lathers, $2.85; plasterers, $3.00.

Other AGC offers: carpenters, $2.52, an increase of 10 cents; iron workers, $2.62½, an increase of 7½ cents; cement finishers, $2.52, increase of 10 cents; bricklayers, $3.10, increase of 10 cents.

Most of the unions asked an hourly wage increase of 25 cents, plus 7½ cents an hour welfare benefits.

Timesaver

Some relief from book work is in order now that Secretary of Labor Martin Durkin has issued revisions of the Walsh-Healey Public Contracts Act. The revisions simplify record-keeping by specifying that the same executive and professional employees who are exempt under the Fair Labor Standards (Wage-Hour) Act, are also exempt under Walsh-Healey, which covers work on government contracts. Also, under Walsh-Healey, an employer may use the same method of computing base rate for overtime purposes that is required under the wage-hour law.



DWARFING BUILDINGS, welded steel ball will be 225 ft dia. Top of erection derrick is 420 ft above foundation (ENR staff photo)

Sphere is atomic sub lab

RECORD-BREAKING STRUCTURES are commonplace in this age of superlatives, but it's rare when the new champion is 26 times as big as its nearest competitor. That's how a steel sphere being erected near Schenectady, N. Y., compares in volume with the largest spherical tanks now in use.

Like many precedent-breaking events in construction today, the giant ball is tied in with atomic energy. It will be a laboratory "building" in which scientists of the General Electric Co. and the Atomic Eenergy Commission will test the power plant section of an atomic submarine hull.

Diameter of the sphere is 225 ft. Next-largest spheres—five of them, all in Connecticut—are 76 ft 6 in. dia. Size of the new tank made it necessary for Chicago Bridge and Iron Co., the erection contractor, to develop some new field techniques. But before going into these it will be useful to tell about the purpose of the sphere:

It is a protective device in a series of precautionary measures against the escape of fissionable materials during preliminary tests on the submarine's atomic power plant. Being built as a pressure vessel, to boiler-code standards, the sphere is expected to contain the fission products in case other safety features fail. The sphere will be insulated and air-conditioned.

Access to the sphere will be through two spherical locks. Inside, there will be an operating floor—a 3-ft concrete slab on compacted crushed rock fill to support an overhead crane, the submarine hull, necessary shielding, a water tank that will surround part of the hull, and other apparatus.

A prototype section of the submarine hull now is under construction by the Electric Boat Division of the General Dynamics Corp., New London, Conn., at a point near the sphere. The power plant, known as the Submarine Intermediate Reactor, will derive its heat from fission caused by neutrons of intermediate energy. The agent for transferring heat to the steam generator will be liquid sodium, "pumped" through pipes by magnetic induction.

Before the submarine hull section and other units are installed in the sphere it will be completed and pressure-tested. Then the walls will be breached to admit the prototype section and construction equipment. Later the holes will be closed, and access again will be through the locks.

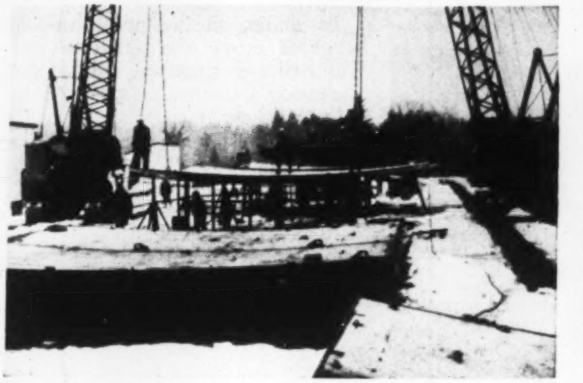
• No internal bracing—Taking care of stresses around the large construction-access openings is just one of the many problems of designing and erecting a tank of such unprecedented size. As it is completely spherical in shape, it will have no internal bracing. Plates vary from 0.90 to 1.02 in. thick. Top plates are thinnest, bottom plates are a bit thicker, and the thickest plates are at the equator. This band of plates transfers the full sphere steel load to 26 pipe columns, 24 in. OD, which bear on "spider" arms cantilevered out from a bowl-shaped concrete foundation (ENR Oct. 23, 1952, p. 29).

The foundation's concave surface is 4 ft distant from the sphere at all points. Foundation top is 38 ft above the bottom of the sphere and about a foot below finish floor elevation. It was the need to have floor elevation near ground level that dictated placing the sphere in a depression. Sphere size was chosen on the basis of the amount of floor space required for submarine tests.

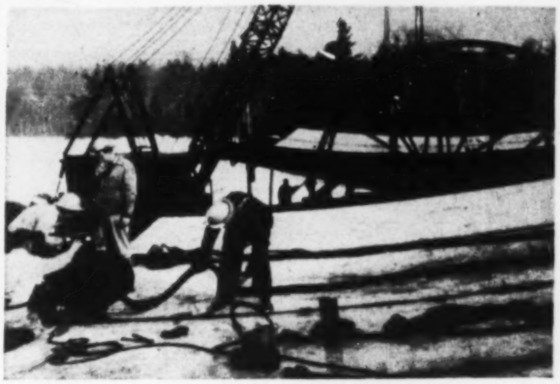
When the interior of the sphere is filled up to floor level, the space between sphere and foundation will be concreted at the same rate of rise, to avoid distorting the steel.

Meanwhile, the space is required for exterior welding access and tank inspection. The sphere, containing 3,850 tons of steel, calls for 25,000 ft of welding. Three-fourths of vertical welds (about half the total footage) are made on special tables nearby. Horizontal welds are made in place.

Plates come to the job in about 9x32-ft size. Having been cold-formed to the proper double-curvature in CB&I's Greenville, Pa., fabricating plant, they are ready to be welded up and installed. The first step is to put



WELDING YARD—Here, plates are assembled into panels (background). Stands in foreground are for joint X-rays.



AUTOMATIC WELDING is done on trunnion-mounted tables. Welder stays level; panel can be turned upside-down.

four of them together on a welding table. These tables, of which there are two, are trunnion-mounted so they can be transited for downhand welding on both sides of the plates. Cranes perform the turnover operation by hooking onto lines around a bull wheel attached to the trunion axis of each table. Slower motion, for keeping the welded joints horizontal at the place and time of welding, is imparted by a small winch.

• **Machine welding**—Welding is done by machine, with the electric arc submerged in flux. Before welding, the plates are positioned $\frac{3}{16}$ in. apart. Bevel is 30 deg off the edge on both sides, with $\frac{1}{4}$ in. left flat. A stringer bead is run by hand, then the machine goes into action, making one pass on each side of the plate. The joint is preheated ahead of the machine to 70 deg F with a gas torch. It takes a day to prepare a 36x32-ft panel on each table. Panels weigh 20 tons.

Panels are hoisted to place in the sphere, complete with scaffold brackets and planks, by an erection derrick that stands 420 ft above the sphere foundation. Based on rock in a hole at the center of the foundation, the derrick consists of a 10x10-ft guyed tower 250 ft high surmounted by a 170-ft guyed mast, and a 150-ft boom.

The first erection step was to place the equator band of plates, to which the 26 columns are welded. The connection is an 18-ft high portion of 24-in. pipe cut to its intersection with the plate and welded throughout the contact. Lateral position of the band and columns is held by 26 horizontal guys from the erection tower. **So close was the control of plate size and vertical welds, that the constructed circumference of the equatorial band was only $\frac{1}{2}$ in. off the theoretical.**

Next, plate placement proceeded, downward, vertical hand welds being made first, then the horizontal. Plates are held in place initially by keys and dogs. Each 36x32-ft section also is supported by a guy to the central tower.

Going upward from the equator, plate position will be aided by trussed-pipe struts or radial arms hinged to the tower like the spokes of a wheel. The final top closing will be made after the last section is hoisted to a position alongside the hole through which the tower projects. The derrick will be dismantled and a couple of panels will be removed from the tower, to bring it down inside the sphere. Then the closing plate will be winched across the hole to place, supported on the tower and welded.

• **Pressure test**—All welds are inspected by X-ray. When the tower is completely dismantled and the bottom closing plate is slid and welded into place, locks will be closed and a compressed-air test stressing the plates to 15,000 psi in the net section will be conducted.

For interior construction access, and for admission of the submarine, two large sections will be cut out of the plate, later to be welded back in place. Steel around these openings will be stiffened with welded-on structural shapes, to resist distortion of the sphere, and in the case of the submarine opening one supporting column will be removed temporarily.

MODEL of sphere shows overhead crane, submarine section and water tank.

Superintendent for CB&I is Wendell Cobb. C. M. Orr, of CB&I designed the sphere. The $2,146,000 contract for sphere construction was awarded by the Atomic Energy Commission. Manager of AEC's Schenectady Operations Office is Jon D. Anderson. The AEC construction engineer is K. C. Knecht. The AEC construction agent is the General Electric Realty Corp., with Tom Kelley the project manager. GER structural engineer is C. S. Darrow; supervising engineer is Gordon Harmon. X-ray contractor is Industrial X-Ray Inc., Seattle. S. E. Barger, of Pittsburgh Testing Laboratories, Inc. is in charge of welding inspection. Sphere erection began in October, 1952, and will be completed in July.

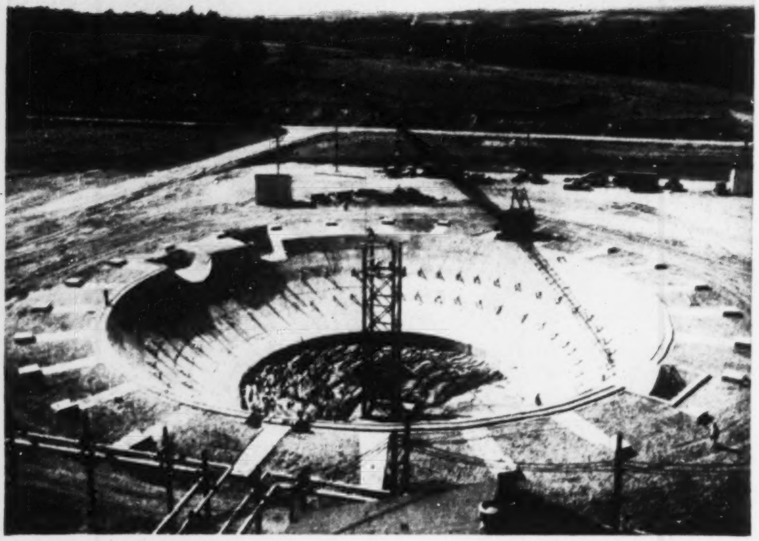
Sphere foundation

David A. Werblin
Griffin Wellpoint Corp.
New York, N. Y.

Buried beneath the spider-leg foundation of the giant atomic-submarine laboratory sphere near Schenectady is a bit of earth engineering that is fully as intriguing as the more obvious feats above ground.

The soil overlying bedrock was a fine silt that in its natural condition would not support excavation equipment. Yet removal of relatively small amounts of water would render the soil stable—not only enough to take the weight of machines, but also to stand at slopes as steep as $1\frac{1}{2}$ on 1. This situation is rarely encountered, but wellpoints can handle it if filters are carefully placed around the wellpoint screens to prevent clogging.

Steep slopes and speed were AEC



SPHERE FOUNDATION is bowl with tank-column footings cantilevered outward. Excavation was a touchy proposition in unstable silt.

requirements for excavation here.

The site's soils originally were an alluvial flood plain deposit. Bedrock was about 20 ft below groundwater, which coincided with a small creek running through the site. Overlying soil was a fine sandy silt with an indication of scattered boulders.

Excavation was to be made through the wet silt to bedrock, and the rock was to be excavated to a lower subgrade. Excavation diameter at water level was to be 250 ft, and banks were to be held at a slope of $1\frac{1}{2}$ on 1.

- **Quaky soil**—First the creek was diverted and a test hole was excavated. When a small backhoe dug 6 ft below groundwater, sides of the excavation remained vertical for a moment, but vibration from the backhoe caused the soil to become fluid and the test hole collapsed. This condition proved to be general for the site, so it was obvious that excavating machinery would bog down hopelessly without soil stabilization prior to excavation.

To overcome this situation, Elmhurst Contracting Co. considered wellpoints, fully realizing that silt is a tricky material for this method. Such soil will flow through or clog the screens, unless a filter is properly designed and installed. As dewatering subcontractor, Griffin Wellpoint Corp. ran field pumping tests on sands from two supply sources, determining one to be suitable. This filter functioned without clogging during three months of continuous pumping.

- **Wet trench**—Part of the bedrock was 25 ft below groundwater, so rather than pump the water in two lifts, Griffin dug a wellpoint header trench two feet below groundwater level. This trench was wet at first, but the system dried the site effectively.

In sanding the wellpoints an 8-in. weighted casing was jetted to rock. The wellpoint then was inserted into the casing and filter sand was poured into the annular space between the casing and wellpoint. The casing was withdrawn, leaving the wellpoint encased in a vertical sand drain. Finally, the sand drain was sealed at the top with silt from the site, to prevent entrance of air into the system.

This simple casing-sinking was prevented by large nested cobblestones and boulders in two-thirds of the perimeter. A heavily-weighted hole-puncher, together with air and water jetting, penetrated these obstacles and permitted successful placement of the wellpoints and sand filters.

To accommodate fluctuations in the rock line levels, wellpoint riser pipes were made up to various lengths in accordance with advance soundings.

The header line enclosed the excavation with 800 ft of manifold and 200 wellpoints, spaced at 4-ft centers. It took about two days to stabilize the ground sufficiently to support excavating machines. The wellpoint pumping plant was diesel-powered, and was designed with large-capacity vacuum pumps to maintain a high vacuum throughout the system while pumping only 20 gpm.

In a silt such as this, only a relatively small volume of water must be removed to achieve stability. Actually, the excavation slopes are held in balance primarily by the resultant of the force of the atmosphere and the vacuum, which is maintained continuously in the ground by the wellpoint vacuum system. This action directs the seepage forces away from the slopes toward the wellpoint screens, and creates tension in the soil pore water.

P. Joyce was acting resident engineer for G. E. Realty Corp. William Reynolds was superintendent for Elmhurst, and B. Pretty and the writer represented Griffin Wellpoint Corp.

WET TRENCH—To avoid two-stage wellpointing, subcontractor put his header in trench below groundwater level.

STEEP BANK—Only 20 gpm came out of 200 wellpoints here, but it was enough to permit silt to stand up well.

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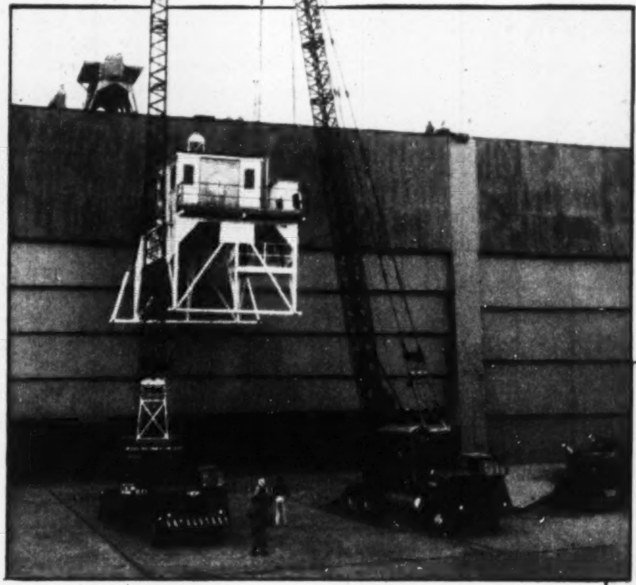

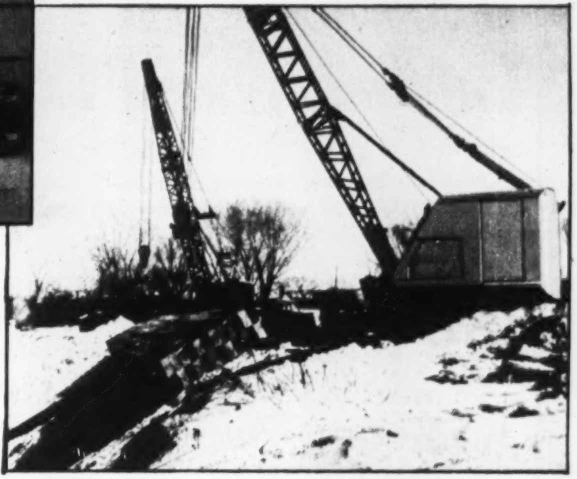

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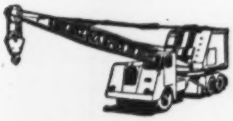

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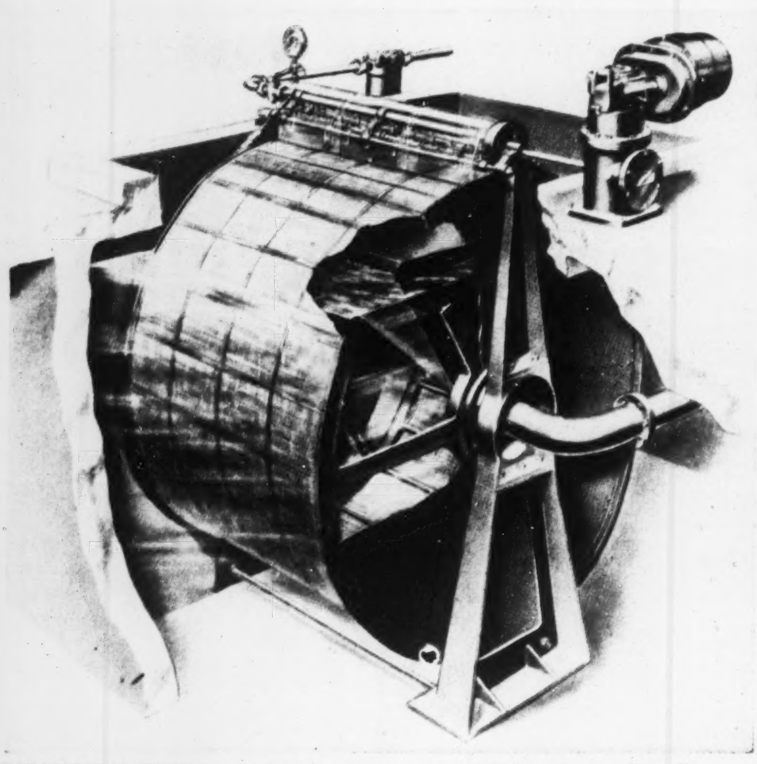


REVOLVING DRUM covered with a fine-woven wire cloth works equally well on raw water and waste works effluent.

Micro-straining . . .

. . . proves its worth in England and shows promise for U. S. as adjunct to rapid sand filtration of water

Arthur Wardell Consoer
Consoer, Townsend and Associates
Chicago, Ill.

MICRO-STRAINING—filtration through a drum screen of fine-woven wire cloth—has become an established practice in Great Britain that holds great promise for U. S. waterworks.

Micro-straining units may well—
- Precede settling basins to reduce algae and turbidity of raw water and thereby reduce operating difficulties.
- Increase capacities of existing filtration plans by permitting more rapid flows through settling basins and filters.
- Substitute for conventional water filtration methods for industrial supplies not requiring intense purification, but an appreciable amount of clarification.

Designers and operators of rapid sand water filtration plants frequently are harassed by operating difficulties because of heavy concentrations of algae and high turbidity in the raw water supply, resulting in very short filter runs and, occasionally, in nearly complete stoppage of plant filtration.

Unfortunately, operating data regarding such incidents have not been publicized adequately; nor, as in one instance in my experience, have the designing engineers always been apprised of the occurrence and extent of such difficulties.

Operating difficulties of this nature are not so apparent with the old-style slow sand filters in this country and abroad. Because of this, it is worthy of note that some water plants in the U. S. continue to be operated with slow sand filters due, in some cases, to apprehension on the part of operators and engineering personnel of the difficulties that might be encountered if rapid sand filters were substituted for, or added to, slow sand units.

It is more than possible that where increased capacity is needed in the case of some U. S. slow sand filtration plants, of which there are still many in service, the capacity of such plants could be augmented by the installation of micro-straining plants.

One of the largest municipal waterworks in the world furnishing filtered water has been located for many years in London, England, where until recently, complete reliance was placed on slow sand filtration. The reason that there has not been an earlier conversion to rapid sand filtration for those important water plants appears to have been the failure to obtain satisfactory results out of rapid sand filter experimental units at times when there was heavy concentration of algae and high turbidity in the Thames River.

• Saw micro-straining work—In recent years there have been in Great Britain considerable investigation, experimentation, and operation of micro-straining as an adjunct for water filtration (ENR Apr. 29, 1948, p. 115). This auxiliary process has been developed largely by Glenfield & Kennedy, Ltd. (105 Park Street, London, W.I.) at their manufacturing works at Kilmarnock, south of Glasgow in Scotland (ENR Nov. 18, 1948, p. 3).

In Great Britain last August I had opportunity to confer with this firm's chief civil engineer, P. L. Boucher, and his associates and to inspect the manufacturing plant in Kilmarnock plus some operating installations of micro-straining.

(Mr. Boucher plans to attend the American Water Works Association convention in Grand Rapids, Mich., this May 10-15 and hopes to spend some time in this country. A selling license previously issued to Infilco Inc., Tucson, Ariz., is said to have been terminated, and Glenfield & Kennedy now propose to do their own marketing and supervisory servicing in the U. S.)

• How it works—In the nomenclature of waterworks practice in England, micro-straining is a term describing a special case of simple filtration in which the filtering medium is a fine mesh membrane made of woven wire cloth. The apertures in the various membranes available are between 65 microns and 20 microns (a micron being 0.001 mm). The membrane, as used in Great Britain, is a very finely woven fabric of stainless steel. In the operation of a micro-strainer equipped with such membrane, there forms on the surface of the membrane a thin Schmutzdecke, or mat of solids. The latter, with the fabric support, has a very high flow rating with inconsequential loss of head, and seems to be capable of retaining suspended solids of sizes even smaller than the tiny apertures of the fabric.

Naturally, micro-straining membrane cannot be employed in the form of fixed screens. The fabrics employed for the membrane are so fine that even if installed for use with relatively clear water they would become blocked in a matter of minutes, or even seconds with any appreciable amount of suspended solids in the raw water. Accordingly, it is fixed practice in Great Britain to use the membrane in automatically self-cleaning machines which are run constantly to eliminate much of the solids from the water treated, with continuous disposal of the solids removed from the raw water by the process.

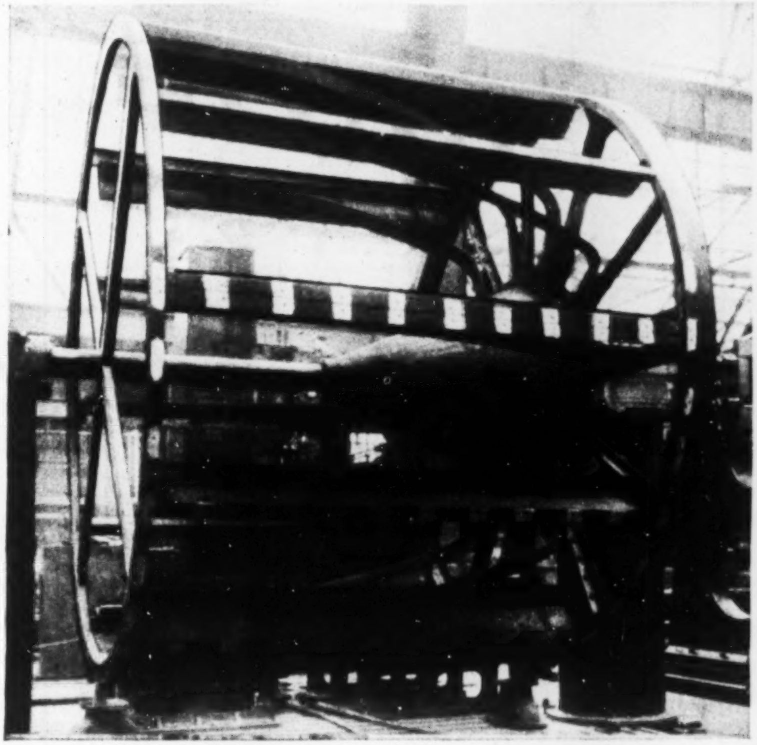
In British practice, the rate of flow per square foot through such a fine mesh straining medium is very much higher than is the rate of flow through sand beds in a conventional slow or rapid sand filter plant. This can be explained by the fact that the matting of the fabric by solids strained out of the water can and does take place rapidly (in a matter of seconds), while the straining medium, which is mounted on a revolving drum, is cleaned completely with every turn of the drum.

• **Equipment described**—The machines developed by Glenfield & Kennedy (as illustrated) are of the rotary drum type with diameters 2.5, 5, 7.5 and 10 ft. A typical unit consists of a revolving drum fabricated of gun metal, properly supported by a structural frame and carried on specially designed ball and roller bearings, mounted on a hollow axle connected to the end frames. Around the outside of the drum is fastened the filtering medium or membrane. The downstream end of the machine is blanked off with metal plates, while the upstream end is open and forms the inlet for the water to be strained. On the inlet end of the machine the revolving drum runs closely against a fixed matching rim of metal. The clearance between the rim and the drum is sealed by band-type external seals or internal seals, spring-loaded to resist the few inches of differential head of water acting on the drum.

The hollow axle carries a waste water hopper which discharges to a waste pipe connected to one end of the machine.

The downstream end plates are not fastened to the drum, but to a fixed end frame with matching rings on the drum and on the end frame, with the clearance sealed off as described for the inlet end of the drum.

• **Operation varies**—Provision is easily made for three different peripheral speeds, namely 12.5, 25 and 50 fpm. The higher speeds are intended for use with bad conditions of raw water. On some experimental units, a drum speed of 100 fpm is being employed with consequent increase in the already favorable economy of micro-straining as an adjunct to water filtration.



14-FT DIA ROTARY SCREEN being fabricated here was manufactured for Edinburgh, Scotland, sewage plant effluent.

These machines are placed and operated in open channels with ordinary gravity flow. The loss of head occasioned by such an installation is surprisingly low and in an average case will not exceed 6 in. Ordinarily, a micro-straining unit with a 7.5-ft diameter and 5-ft width will have a capacity for treating 2.5 mgd average quality raw water.

Raw water entering the upstream side of the cylindrical micro mesh strainer passes radially and outward through the micro mesh during filtration. The drum revolves slowly at the speeds mentioned above, and the suspended matter in the water which is trapped on the mesh, is automatically washed away into the waste water trough by the action of a series of water jets continuously playing on the top of the strainer.

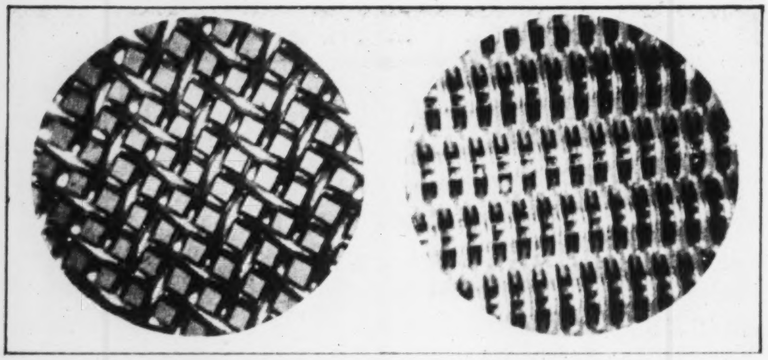
These automatic micro strainers are self-cleaning and they operate continuously to eliminate and dispose of solids from the liquid flowing through them.

In operation, the drum is submerged to bring the water surface to a level just below the lip of the wash water waste hopper. With such installation, the top of the drum is rotating in clear air and at its highest point passes under the wash water jets. The water from these jets penetrates the straining membrane and flushes the mat of solids held thereon into the waste water hopper. In an ordinary micro-straining plant, wash water consumption amounts to about 1% of the volume of water treated. Water jet pressures vary from about 5 psi to 10 or 15 psi, depending on drum speed and water quality.

• **Wire mesh is key**—The secret of the success of these micro-straining units can be ascribed to the suitability of the stainless steel wire fabric which is so fine that the apertures are barely visible. In England, wire weavers have been able to manipulate the wire and interlace it on special looms so as to obtain a fabric of high strength and durability.

Ordinarily, the finest of the micro-straining fabric is woven from wires of 0.0024-in. diameter, with cross wires having 0.0022-in. diameter. The number of apertures per square inch is almost 80,000. A standard drum 7.5 ft in diameter and 5 ft wide will contain almost 60 miles of these wires in its mesh membrane, and the total number of apertures in the membrane will come to about 1.4 billion. (New fabrics have been developed recently with up to 135,000 apertures per square inch.)

There have been methods developed in Great Britain for determining the filterability of fluids and ways and means of determining proper standards of design for any set of raw water con-



WIRE CLOTHS—FINE AND FINER—are key to success of micro-straining. Square mesh (left) has 85-micron openings; triangular weave (right) has 35-micron apertures.

ditions to insure the successful operation of the selected micro-straining units. The developers of this process in Great Britain have found it desirable to collect filterability records of the water to be treated over an extended period of time so that all seasonal changes are taken into account.

In my experience with unsuitable raw water here in the U. S., it has happened that unsuitable water is encountered noticeably only on rare occasions, but when it is, it can cause great difficulty in operation of a water filtration plant. Heavy concentrations of algae are very apt to occur simultaneously with an hourly peak demand for finished water. Naturally, the micro-straining unit must be designed to take care of the raw water in its worst state.

Proper filterability testing must include testing of the raw water when it contains plankton forms as well as a great variety of suspended solids which may be comprised of the many different substances found in rivers, lakes and impounding reservoirs, including substances resulting from the decay of vegetable matter, as well as sewage solids, industrial waste matter and various types of soil.

• **Conclusions**—Summing up, the principle of operation lies in the use of a drum of straining fabric, a large part of which is submerged in the fluid to be strained, in such a way that the flow is through the fabric while the small remainder of the fabric is above the surface of the fluid. The fabric is moved at an appropriate speed so that the blocked, or partly blocked, portion of the fabric leaves the fluid and comes under the influence of cleaning arrangements—usually water jets under pressure, and re-enters the fluid in a cleaned condition. The solids intercepted by the strainer are continuously removed from the fabric and carried off by the wash water in highly concentrated form.

The Glenfield & Kennedy Micro-Strainer machines are well-designed and durably built. Cleaning arrangements consist of one or more rows of water jets outside the drum at the top, the water from which penetrates the straining medium and flushes the solids arrested thereon into a waste trough fixed inside the drum. The water to be strained enters the drum axially and flows through the straining fabric in radial directions. The loss of head from inlet to outlet is almost entirely that caused by the straining fabric and rarely exceeds 5 or 6 in.

• **Applications, U. S. and U. K.**—Recently I obtained from Glenfield & Kennedy a proposal for a micro-straining unit with a calculated capacity of 8 mgd (U. S. gallons), assuming a 10,000-standard unit algae count and a turbidity of 600 ppm. This was to include an installation of three standard micro-straining units of 7.5-ft diameter and 5-ft width. It was estimated that wash water consumption for the cleaning jets on the three machines would amount to about 1% of the volume of water filtered.

Cost of this equipment, f.o.b. a British port, was estimated at about $28,000. Freight charges to New York were estimated at $1,000. The costs would also involve a charge for marine insurance, landing charges, import duties, trucking and loading charges in New York, unloading charges at the point of installation, and insurance while in transit in the U. S. Import duty would be about 14% on this type of equipment.

It is estimated that the total cost of an 8-mgd installation in the Midwest would amount to $75,000. Such an investment would seem to be entirely justifiable for a situation where there is great likelihood of encountering heavy concentrations of algae and high turbidity in the raw water, which could shorten seriously the length of filter runs and actually diminish the capacity of a plant at a time when peak loads were imposed.

At the Ashford Common or Lea Bridge Filtration Station of the London Metropolitan Water Board, it was determined to substitute a micro-straining installation as an alternate to additional new primary, rapid sand filters, with the thought that the flow through existing slow sand filter beds would be increased in the same way as with new primary filters, but with a smaller loss of head and a much less capital cost. The total flow capacity of these London installations is 150 mgd.

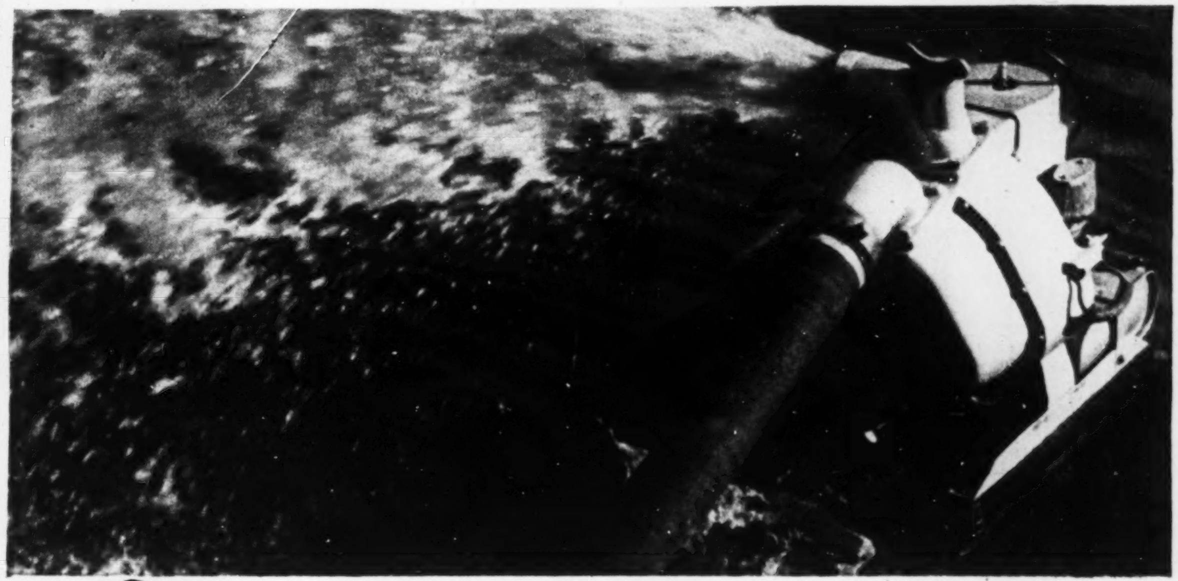
In England, the widest application of micro-straining has been to the filtration of surface water to cut down the load on slow sand filter beds, or reduce the frequency of filter cleaning and of raising filtration ratings to meet increased consumption without extension of the filter beds. In some new plants, micro-strainers are being introduced preceding rapid sand filter beds.

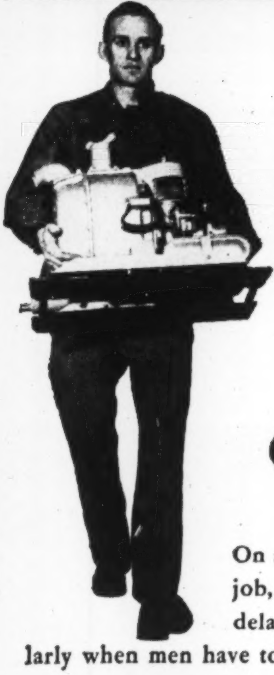
There also have been some important applications of micro-straining in recent sewage treatment plants abroad. For example, micro-straining is being applied to bring about further clarification of effluents from both activated sludge plants and trickling filter plants. Lutton and Derby in England are using the process on a large scale.

In Great Britain proponents of the use of micro-strainers contend that "with most impounded waters micro-straining will increase slow sand filter runs—estimated in millions of gallons filtered per acre of bed cleaned—to between two and three times, and will allow normal slow sand filter ratings to be doubled." Similar increases probably can be expected in the U. S. for ratings on slow sand filter beds, unless there is interference from particularly tenacious types of algae. Also some increases can be expected for ratings on rapid sand filter beds in the U. S. However, in the U. S. some day-to-day experience with one or more installations appears to be needed in order to firm up technical opinion here regarding the efficacy and economy of utilizing micro-strainers as an adjunct to rapid sand filtration where raw water with heavy concentrations of algae and high turbidity are present.

The advent of micro-strainers in the U. S. should, in my opinion, be hailed with enthusiasm by many filter plant operators who have in the past reported much unsatisfactory experience in combating concentrations of algae with prechlorination, with heavy dosages of activated carbon, with copper sulphate applications, and other remedial measures.

Micro-straining installations for water-supply in England include projects for London, Bristol, Liverpool, Manchester, Preston, Tynemouth, and Birmingham—and in Scotland, at Kilmarnock, Airdrie, Aberdeen, and Edinburgh.





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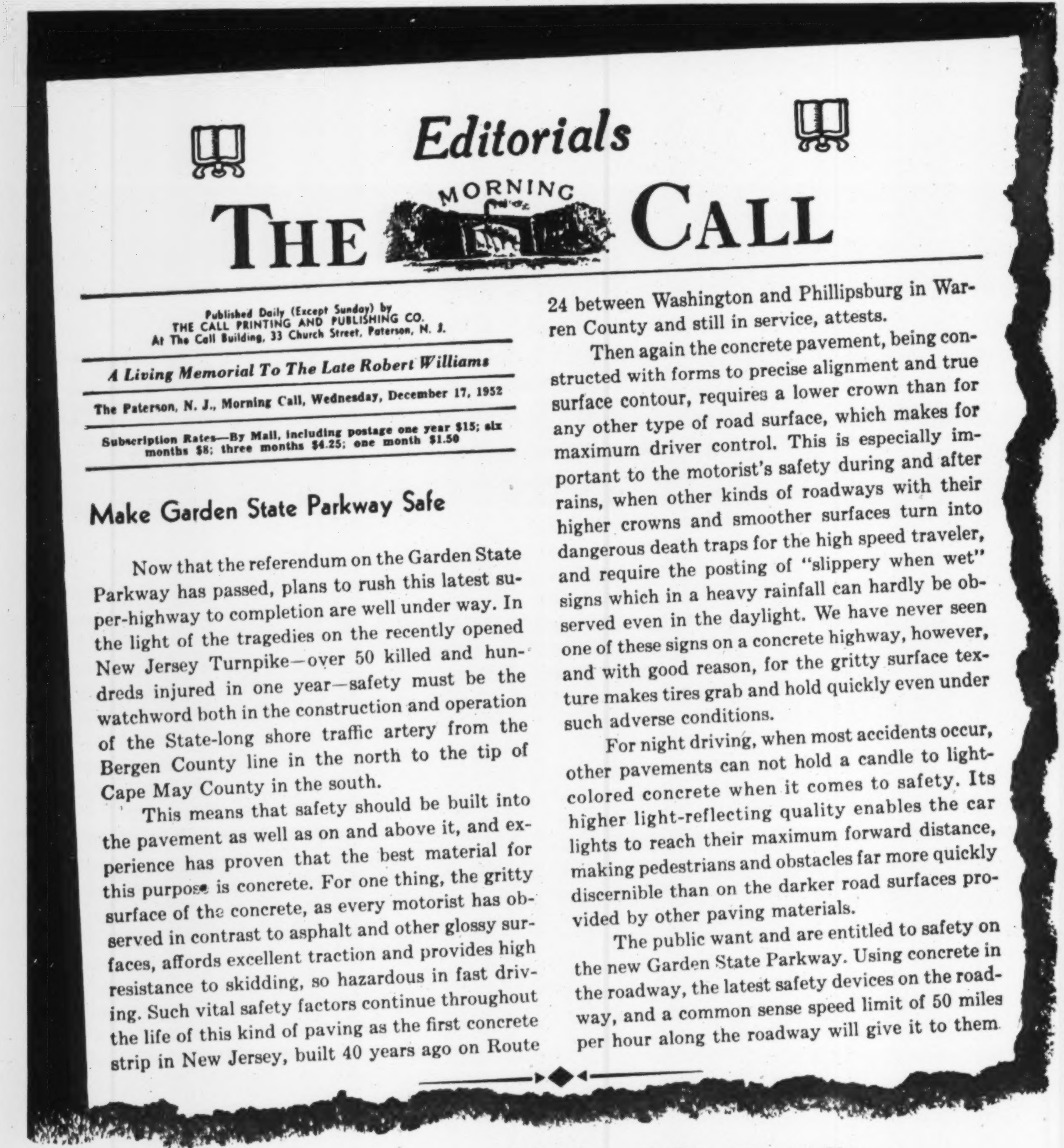

Editorials

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Make Garden State Parkway Safe

Now that the referendum on the Garden State Parkway has passed, plans to rush this latest super-highway to completion are well under way. In the light of the tragedies on the recently opened New Jersey Turnpike—over 50 killed and hundreds injured in one year—safety must be the watchword both in the construction and operation of the State-long shore traffic artery from the Bergen County line in the north to the tip of Cape May County in the south.

This means that safety should be built into the pavement as well as on and above it, and experience has proven that the best material for this purpose is concrete. For one thing, the gritty surface of the concrete, as every motorist has observed in contrast to asphalt and other glossy surfaces, affords excellent traction and provides high resistance to skidding, so hazardous in fast driving. Such vital safety factors continue throughout the life of this kind of paving as the first concrete strip in New Jersey, built 40 years ago on Route 24 between Washington and Phillipsburg in Warren County and still in service, attests.

Then again the concrete pavement, being constructed with forms to precise alignment and true surface contour, requires a lower crown than for any other type of road surface, which makes for maximum driver control. This is especially important to the motorist's safety during and after rains, when other kinds of roadways with their higher crowns and smoother surfaces turn into dangerous death traps for the high speed traveler, and require the posting of "slippery when wet" signs which in a heavy rainfall can hardly be observed even in the daylight. We have never seen one of these signs on a concrete highway, however, and with good reason, for the gritty surface texture makes tires grab and hold quickly even under such adverse conditions.

For night driving, when most accidents occur, other pavements can not hold a candle to light-colored concrete when it comes to safety. Its higher light-reflecting quality enables the car lights to reach their maximum forward distance, making pedestrians and obstacles far more quickly discernible than on the darker road surfaces provided by other paving materials.

The public want and are entitled to safety on the new Garden State Parkway. Using concrete in the roadway, the latest safety devices on the roadway, and a common sense speed limit of 50 miles per hour along the roadway will give it to them.

◆

You're right, Mr. Editor . . .
The Safe Pavement IS Concrete

- Concrete's gritty surface makes it skid-resistant—whether it's wet or dry.
- Concrete's lower crown makes for better driving control at all times.
- Concrete's light color enables you to see much better—and be safer—at night.
- Concrete is free from hazardous ruts and washboard wrinkles. It stays put.

PORTLAND CEMENT ASSOCIATION

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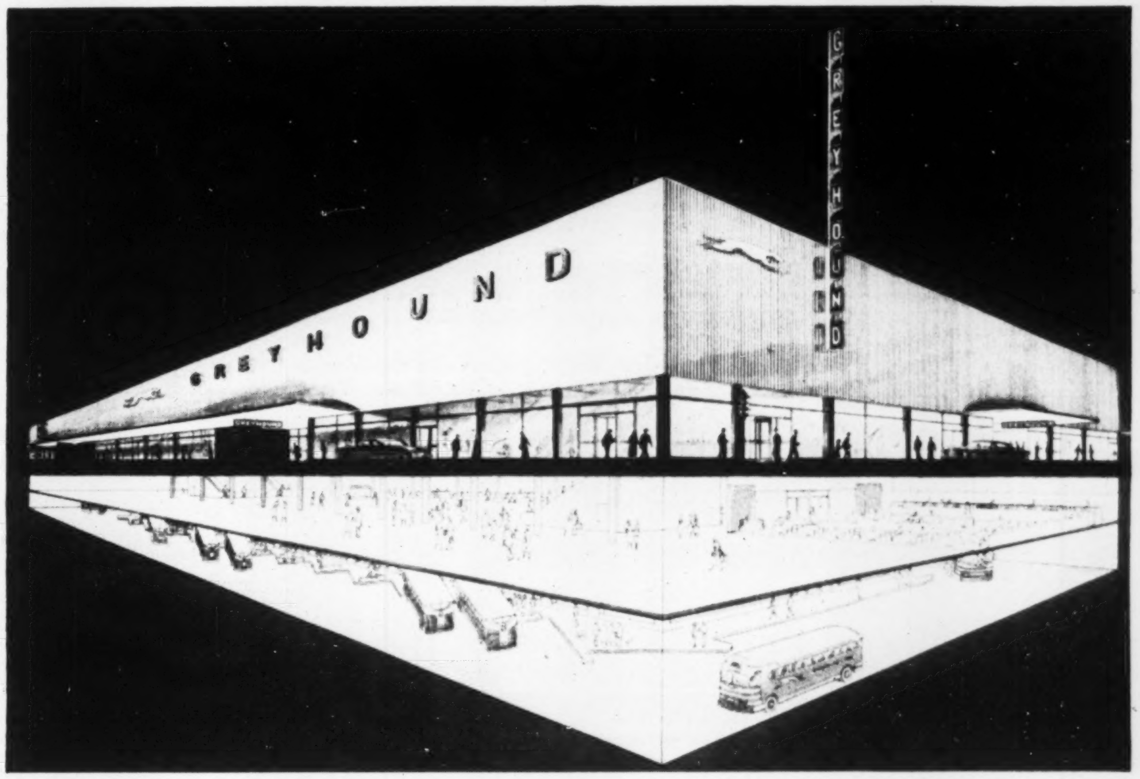
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



STAINLESS STEEL FACADE above shops and restaurants encloses the second-floor parking area in a Chicago bus terminal. There are also a roof parking area and a waiting room at first-basement level, but . . .

Buses load underground in new terminal

Bus terminals in metropolitan areas usually add to the traffic congestion wherever they are located, since they form the hub of a network of transportation lines. They often put parking space at a premium in the vicinity and seldom are revenue-producers except on a relatively small scale.

These concepts of bus-terminal operation are completely reversed in the Greyhound Corporation's five-level bus terminal in Chicago, which started operations on March 20.

The $10-million terminal—located in the Windy City's busy Loop district at Randolph, Clark and Lake streets—adds no load to the present heavy street traffic. It provides sorely needed off-street parking in that area, and apparently will produce a substantial revenue from rental space.

This is all made possible by the farsighted planning that went into the structure. Buses load and unload from a concourse at second-basement level. The ticket office and waiting room are located one floor below street level. The entire ground floor is given over to shops and restaurants commanding high rentals, while the second floor and roof have parking space for 480 cars.

Greyhound says its new Chicago terminal is the largest independently owned bus terminal in the United States, and that over 2,000,000 travelers per year will pass through it. It is the largest single project in Greyhound's $45-million postwar construction of bus stations and garages. Eight of the corporation's intercity lines will use the new terminal.

• 500 buses per day—Currently, about 210 buses use it daily, but summer holiday peak loads are expected to exceed 500 buses every 24 hours. At this rate, more than 15,000 travelers would pass through the terminal in a single day. This peak daily travel has been reached already at Greyhound's old bus station, at Roosevelt Road and Wabash Ave., in Chicago.

Greyhound expects to receive a total rental of about $600,000 per year from its leased areas. To date, 20 leases have been executed representing 95% of the rentable area.

The largest rental transaction is a 25-year lease for 15,000 sq ft of ground-floor area containing a restaurant seating 600 persons. The lease provides for a minimum guaranteed total rental of $1,625,000 for the 25-year period, plus a percentage of gross sales.

In addition to the restaurant, there will be 12 stores and shops having frontages on Randolph and Clark streets and surrounding two sides of the upper section of the waiting room.

• Underground approach – From a traffic standpoint, the most noteworthy feature of the terminal is that buses from all directions enter and leave the concourse—located 25 ft below street level—without traveling on Loop streets. They approach the terminal on the lower level of Wacker Drive, which parallels the Chicago River just north of the terminal.

A short stretch of street (Garvey Court) connects the lower level of Wacker Drive to a 225-ft tunnel leading down to the bus concourse. This twin-barrel tunnel passes beneath Lake Street and above the Lake Street leg of the Dearborn Street subway. Each barrel of the tunnel is 15 ft 9 in. wide and 13 ft high (inside dimensions) to accommodate double-deck buses.

"It was a tight squeeze," said Andrew J. Brown, structural engineer of Skidmore, Owings and Merrill, architects and engineers on the project, "to pass this tunnel beneath the existing service facilities buried under Lake Street, and over the subway tube."

• Terminal traffic control—While the bus terminal poses no problems for traffic on adjacent streets, it has its own traffic problems in the tunnel and on the concourse.

Incoming buses use one tunnel and outgoing buses, the other. Buses unload along the west side of a 300x40-ft glass-enclosed passenger concourse centrally located in the 380x160-ft bus concourse area (see accompanying sketch), and leave the terminal for servicing.

Buses are loaded along the east side of the passenger concourse, pull around the area and leave through the out-bound tunnel. This means that inbound and outbound traffic cross just inside the concourse.

Bus traffic inside the tunnels is controlled by a conventional stop-and-go traffic light at the street end of the tunnels and by electric eyes mounted on the tunnel walls. All traffic in the concourse area is governed from a dispatcher's office located in one corner of the passenger concourse area facing the tunnels.

An incoming bus, either loaded or to be loaded, enters the tunnel on the green light at street level and stops at the entrance to the concourse area. The bus driver gets his instructions as to which dock to park at for loading or unloading, by verbal instructions from the dispatcher, through a speaker mounted just inside the tunnel. At the same time; the dispatcher pushes a button lighting up a number over the dock to be used, for the information of the driver.

• Safety signals—During this interval, outgoing buses are held in the concourse area by a red warning light, actuated by the electric eyes in the tunnel. This provides maximum safety and guards against collisions between incoming and outgoing traffic as their paths cross.

As a bus pulls into the assigned dock, either for loading or unloading, it brushes against a steel rod suspended from a dangle switch mounted in the ceiling. This actuates a corresponding light on the dispatcher's control panel so he knows at all times which docks are being occupied. As a bus backs out from its dock, the light on the control panel goes off.

There are 31 loading and unloading docks, forming a saw-tooth pattern around the passenger concourse. The buses park at an angle in a 60-ft wide area, which leaves room for buses to pass two abreast behind the parked buses.

Based on a 15-min. loading or unloading time, the terminal will be able to handle 124 buses per hour, with a total carrying capacity of 4,500 persons.

• Baggage handling—Baggage handling is highly mechanized. Continuous belt conveyors transfer it between the baggage room at the waiting-room level to a baggage station along the east side of the bus concourse. Outgoing baggage is removed from the bottom end of the conveyor, and loaded onto push carts for transfer to buses.

Incoming baggage is parted from the buses to the west side of the concourse. It is placed on an under-floor conveyor belt, which takes it to the baggage station. Here it is either transferred to a conveyor belt leading up to the baggage room in the waiting room, or reassigned to another bus if its owner is transferring to another bus.

Three electric moving stairways run from the bus concourse to the waiting room above, and four run on up to the ground floor. Fixed stairs also connect the three levels. The moving stairways are stainless steel, and operate at 90 fpm, although they have top speeds of 120 fpm.

The central 180x60-ft portion of the waiting room is two stories high. Accommodations on the waiting-room floor level include information desk, ticket offices, molded plywood and aluminum seats, 800 storage lockers, rest rooms, baggage check room, travel bureau, offices for the terminal personnel, cafeteria, first-aid room, barber shop and other concessions. The barber shop, cafeteria and some concessions operate on a 24-hour basis.

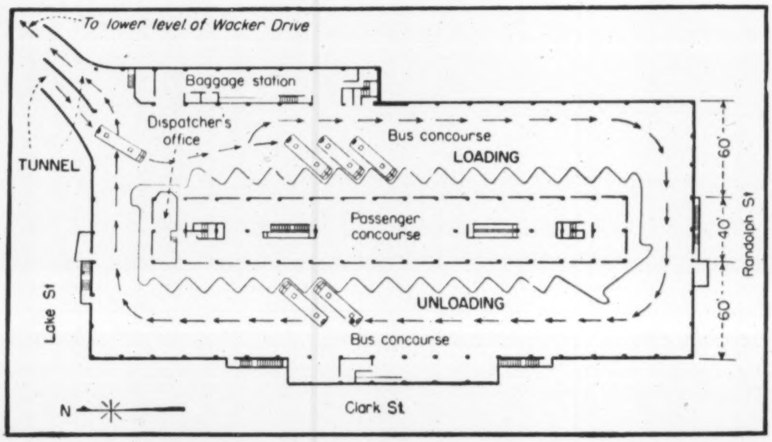
• Structural details—Each floor of the five-level structure covers 66,000 sq ft. Over-all dimensions are: 380 ft on Clark St., 160-ft on Randolph, and 183 ft on Lake St. The building has a structural steel frame, with reinforced concrete joist-and-slab construction. Column spacing across the width of the building is 60, 40, 60 ft, to provide a 60-ft width of bus concourse around the 40-ft passenger concourse.

This column spacing, together with the fact that the central portion of the building is designed for the future addition of a 10-story office building, created some unusual foundation problems.

Concrete-filled, bell-bottomed caissons were sunk to hardpan 80 ft below street grade to carry design loads of 6 tons per sq ft. But the biggest problem was to keep the concourse slab from buckling upward on account of the hydrostatic pressure of the saturated, plastic clay beneath it. This was done by driving long steel sheet-piles into the clay and anchoring their tops in the concrete slab. Skin friction of the piles prevents the slab from heaving upward between the caissons.

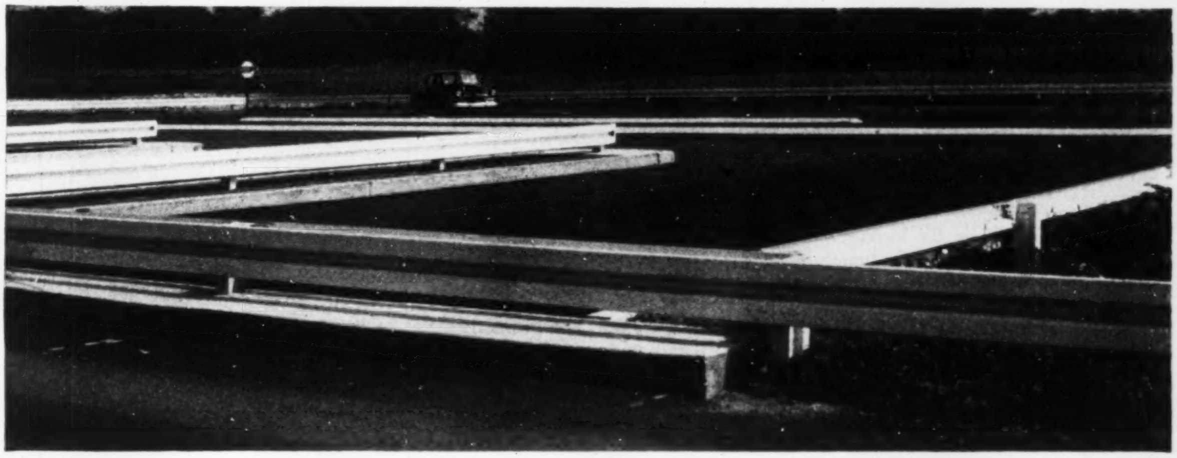
Heavy wide-flange steel beams, in general, support the concrete floors. In some areas, however, because of the long spans involved, trusses at the first-floor level, support the ground floor and waiting-room floor on hangers located midway between the main columns.

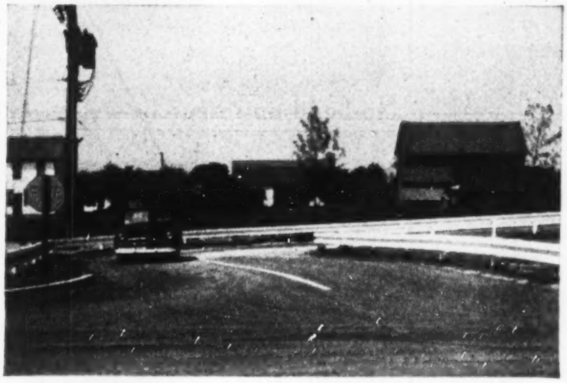
• Stainless steel facing—The building is faced with 24-ft high ribbed panels made of 18-ga stainless steel. They extend from the top of the plate-glass



LOADING DOCKS in the sub-basement are adjacent to the tunnels to the street.

Test course for new drivers has Safety-Beam protection





WHAT CANDIDATE FACES—New driving course can be completed in 4½ wheel-twisting minutes. With a state trooper at his side, the driver must negotiate an upgrade figure 8 (above) in either second or high gear, make a complete turn in one of the narrow "stalls" (above) without touching the curb or the guard rail, stop and hold the car at an upgrade stop sign (lower left), and make sharp turns (left) unexpectedly banked the wrong way. It's a workout for the troopers, too; up to 400 tests some days.

Bethlehem Safety-Beam Guard Rail—1375 feet of sturdy steel—guides rookie drivers through a new test course at the Pennsylvania State Police barracks near Bethlehem.

The same features that led to the choice of Safety-Beam here have caused highway engineers to specify it for danger spots along many miles of highway. Safety-Beam sections lock together in a continuous beam. Impact is absorbed, not by a single post, but by a number of adjacent posts. One bolt fastens Safety-Beam to any type of post, and unskilled workmen can do the job without special tools.

For complete information about Bethlehem Safety-Beam Guard Rail—and other road steel products listed below—call the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.

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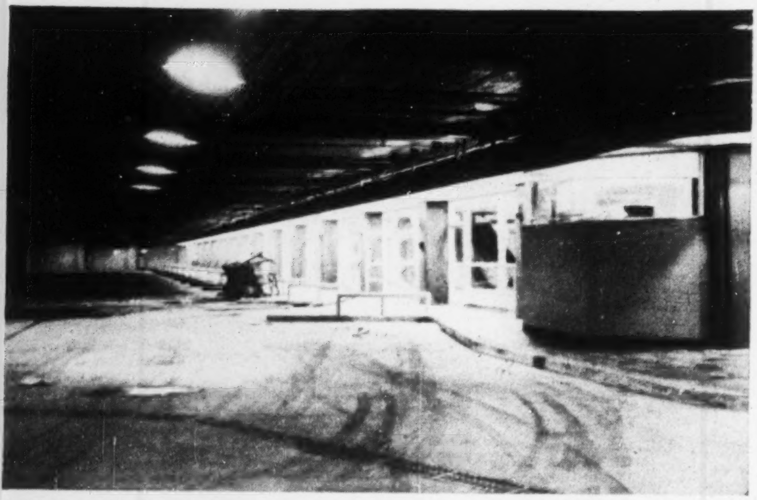


BUS CONCOURSE in the loading zone is 60 ft wide and 380 ft long. Photo was taken prior to dedication of the terminal. This area will be a beehive of activity this summer, when it may handle as many as 500 buses in 24 hours.

windows to the top of the building. The panels are 6 in. wide, with 1½-in. ribs, and are mounted 2 ft 6 in. outside of the column lines to clear reinforced concrete parapets on the car-parking floors.

Interior trim is mostly aluminum. The intermediate hangers in the waiting room, however, are faced with stainless steel, and other columns are faced with marble, which is also used in the entrances, shops and waiting room.

Most of the lighting is egg-crate type fluorescent, recessed in the acoustic tile ceilings. The waiting room is also lighted with three clusters of pendant lights, chiefly for decorative purposes. Windows on glass-enclosed areas have aluminum frames. Pedestrian floors and walkways have a terrazzo finish.

• Fire safety—With buses operating on the lower level and car parking on the two upper levels, special attention had to be given to fire protection for the waiting room and ground floor. To insure this protection, fire-resistant construction having a 4-hr rating was installed above the bus concourse and beneath the first parking level.

Fire emergency stairs lead from the concourse up to the ground floor, and sliding hoods can be pulled over the moving stairways between concourse and waiting room in the event of a smoke emergency in the concourse area.

Normally, the concourse is ventilated by two large shafts extending to roof level and topped with exhaust fans. In an emergency, four smoke-exhaust vents can be placed in operation. They discharge through sidewalk gratings.

The waiting room and ground floor are air-conditioned, but the concourse is ventilated with air drawn in from outdoors. The ventilation system has a capacity of 180,000 cfm, creating a 5-mph breeze through the tunnel. Ventilating and air-conditioning equipment are located in a penthouse on the roof.

• Snow and ice control—In two areas of the terminal—the entrance and exit tunnels, and the roof parking level—snow and ice control are necessary. Tunnel floors, which have a maximum grade of 8%, are kept free of ice and snow by panel-heating electric wires embedded in the concrete.

Snow falling on the roof parking level will be pushed by a bulldozer onto a small steam-heated steel-pipe frame and melted. Access to the parking floors is by ramps from Clark and Lake Streets.

The total cost of $10 million for the terminal includes $2.25 million for the site, which was purchased in 1941. Demolition of the 11 existing buildings on the site was started in May, 1949, with foundation work beginning that fall. Structural steel erection began in the summer of 1951.

Because of delays in obtaining building materials, labor shortages and work stoppages from strikes, bad winter weather, and foundation difficulties, it took more than three years to complete the terminal.

• Architects and contractors — Skidmore, Owings and Merrill were the architects and engineers on the project, and W. A. Mullin was their project engineer. E. F. Webster was supervising architect for Greyhound.

Ragnor Benson, Inc., built the entrance and exit tunnels, F. J. Herlihy did the foundation work, and the American Bridge Co. erected the steel framework. John W. Harris Associates, Inc., were the general contractors, acting as contract manager for the numerous subcontracts required to complete the building. Thomas G. Smith was their general superintendent, and H. von der Fehr was project manager.

Hydrogen fluoride detector perfected

Industrial research at Stanford Research Institute, Palo Alto, Calif., has resulted in a new machine for continuously measuring hydrogen fluoride gas, a potentially dangerous air pollutant.

With other sampling methods, gases are accumulated for several hours to measure the average intensity, but extreme high or low concentrations are not marked. The new instrument can record fluctuations over a period of several days and may be left unattended in the field.

Detection is made on a roll of fluorescent filter paper which slowly unwinds from one tape to another. Contact with HF gas diminishes the fluorescence. Variations are measured photo-electrically and the results are graphed on a continuous recorder.

Wastes federation wants to build up research

Louis J. Fontinelli, vice-president (and probable next president) of the Federation of Sewage & Industrial Wastes Associations, says the federation is looking for increased research activities and will enlarge its headquarters staff, if necessary, to handle the desired increase.

He made this policy news known in an address before the New Jersey Sewage & Industrial Wastes Association in Atlantic City recently. The New Jersey group, oldest in the federation, was holding its 38th annual meeting.

A three-day program including several descriptions of patented processes by manufacturer representatives also featured a panel discussion of sewage financing methods.

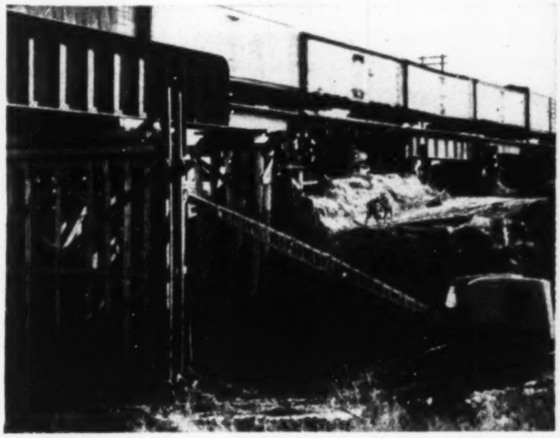
W. S. Coward, assistant chief auditor, division of local government, State of New Jersey, covered direct taxation. A. D. Cross, of Mt. Holly Sewerage Authority, described authority workings. William S. Foster, engineering editor of THE AMERICAN CITY MAGAZINE, reviewed current practice of increasingly popular sewage service charges; his conclusions included recommendation that formulas for charges be easy to apply, simple enough for municipal officials to understand and logical enough for the man in the street to accept.

IN FORT WORTH

Three years of earthmoving have brought to about the half-way mark a Corps of Engineer project to control one of Texas' more troublesome rivers—the Trinity. Work began in 1950 on the project to which local interests are contributing approximately $5.3-million worth of land, rights-of-way and utility relocation. Cost to the federal government is to be $4.3 million. Completion is due in 1954. Present contractors are Spencer Construction Co., Carrollton, Tex., and List & Clark, Kansas City, Mo. E. F. Cirkal is the Army's project engineer.

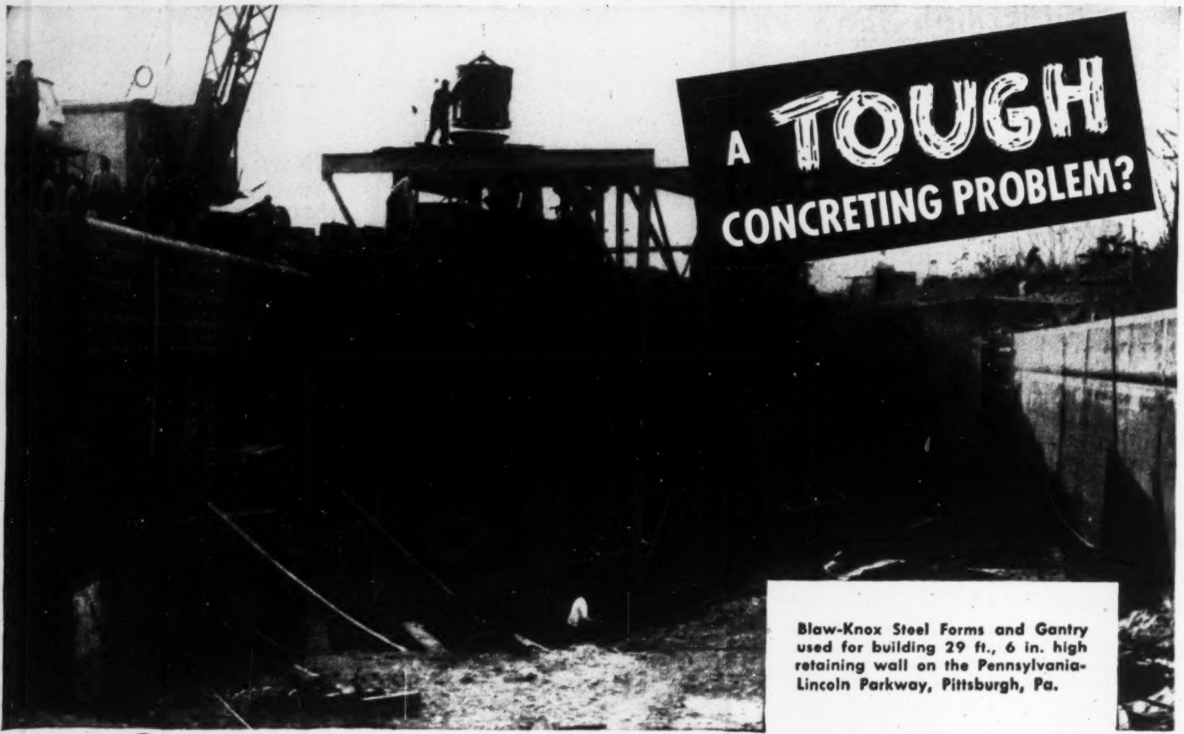
CONSTRICTED CHANNEL, overgrown with vegetation, formed a flood threat to downtown Fort Worth, Tex. It has been . . .

BROADENED, CLEARED AND STRAIGHTENED to become a 4,000-ft floodway—part of a $9.6-million joint local-federal project now 50% completed. Together with recently finished Benbrook Dam, the floodways will protect Fort Worth against floods of the Trinity River and its West and Clear forks that meet in the city.



BRIDGES NEED ALTERATION along the 11-mile channel improvement project. Channels are being widened to 100 and 200 ft. Here a new span and 70-ft pier go in.

DRAINAGE STRUCTURES are needed, too. Levees up to 13 ft high are formed of material from 7,000,000 cu yd of excavation. Work is under Col. H. R. Hallock, Fort Worth district engineer.



Blaw-Knox Steel Forms and Gantry used for building 29 ft., 6 in. high retaining wall on the Pennsylvania-Lincoln Parkway, Pittsburgh, Pa.

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A MESSAGE TO AMERICAN INDUSTRY • ONE OF A SERIES

FOR REAL HELP TO SMALL BUSINESS

It is ironic that one of the first jobs of the Eisenhower administration, so widely, and erroneously, tagged as a "big business" administration, must be to go to the relief of small business. This is necessary because the preceding administration, while continually proclaiming its tender regard for small business, actually impaired gravely the ability of small business to carry on successfully. This it did in the necessary haste of devising an emergency tax program to finance rearmament and the Korean War. Now the new administration must revise this tax structure to give small business a chance to make its key contribution to an expanding American economy.

How Taxes Hurt Small Business

Since the outbreak of the Korean War, small business has been handicapped by two principal features of the emergency tax program:

1) Many small firms are unable to retain enough of their earnings to provide for expansion because these earnings are drastically limited by the excess profits tax.

2) Small companies have received a very small share of the tax concessions allowed by the federal government to encourage construction of defense facilities.

A small business that succeeds and hence grows is particularly hard hit by the excess profits tax. That tax, of course, applies to corporations having a net income of more than $25,000 per year. It results in taking up to 82 cents on every dollar of profit that the company earns above what is called an "excess profits credit." For most small companies the credit depends on what was earned in 1946-49. This creates an element of gamble and discrimination in determining the amount of tax to be paid. Time has proved that it is impossible to select a base period for the tax that is fair to all companies. A young company starting in 1946-49 is peculiarly vulnerable, as its earnings in that period were necessarily low. Even on modest earnings today, it would pay a high excess profits tax.

It is true that Congress wrote into the excess profits tax law provisions to lessen the impact of the tax on growing companies. However, none of these provisions in practice has given much relief to small business.

"Relief" Provisions Give Little Relief

Small firms rely almost entirely on retained earnings to provide funds for improving their plants and equipment. They get very little help from the provisions (1) that no more than 70 per cent of total profits can be taxed away, (2) that additional earnings are allowed on an increase of invested capital or (3) that growing companies are allowed a rate of return on capital equal to the industry average.

Most large firms can obtain additional funds in the securities market. But small firms find it difficult to increase their capital by selling securities, since investors generally prefer the stocks or bonds of nationally known and seasoned companies. Few small companies, therefore, can reduce their tax burdens by increasing their invested capital, and few can meet their needs for equity capital if their rates of profit are no higher than those of the leading companies which generally set the average profit.

Small business has been equally at a disadvantage in the matter of accelerated depreciation for tax purposes. The government has encouraged a great expansion of our industrial plant, despite the very high rate of taxation on corporate earnings, by granting certificates of accelerated amortization on new plants built to support the defense program. These certificates allow business to charge off the cost of defense plants at a rapid rate. This decreases the earnings that are subject to taxes, and so increases the part of the earnings that may be retained in the business.

Growth is Stifled

But most of these tax concessions have been made to large firms especially equipped to handle the complex problems of defense production. Of the $12 billion of new facilities so far approved for fast amortization, only 11 per cent are for companies with less than 500 employees, although the share of such companies in the normal civilian business is about 30 per cent. In only 2 of 12 industries studied by the Small Defense Plants Administration were small firms receiving what was estimated to be a fair share of the total tax amortization awarded.

Because they are unable either to retain enough earnings after taxes or to step up their depreciation allowances, most small firms are unable to keep up in the race to expand and modernize plant capacity. The Small Defense Plants Administrator, in his report to Congress, emphasized that small companies have been unable to do their full part in the defense program for lack of capital.

The Council of State Chambers of Commerce recently published an eight-state survey showing widespread cutbacks of plans for new plants by small and medium-sized companies. According to this report, "high federal taxes enacted since the beginning of the Korean War appear to be placing an effective brake on the rate of industrial expansion in all the states surveyed and probably in the 48 states generally . . . It is principally the small and medium-sized companies whose growth is being stifled."

Some Ways to Help

The first step to relieve small companies should be to free them from the excess profits tax. The nation as a whole would be far better off if the excess profits tax were allowed to die as scheduled on June 30, since the tax promotes waste as it stifles incentives. It is quite possible, however, that the politics of tax reduction, as opposed to the economics, will prevent the elimination of the tax during 1953.

If the tax is extended, provision should be made for a much broader exemption to smaller corporations. If net income up to $100,000 a year, which in these days still constitutes small business, were exempted from the tax, the loss of revenue to the government would be about $175 million. This relatively small amount could easily be offset by an increase in employment and incomes if small business is freed from its financial strait jacket and allowed to expand. Careful attention should be given also to the possibilities of allowing a higher rate of return on the first $1 million of capital (roughly the amount it takes to provide 100 jobs) and of making special accelerated depreciation allowances to smaller firms. This is a matter so important that we shall return to it in a future editorial.

Relief for small business – relief from a financial paralysis that has kept it from playing its dynamic part as a growth element in our economy – would do much to give the lie to the notion that the Eisenhower administration is a "big business" operation. Much more important, it would be a long stride toward releasing the dynamic energies of many small businesses and businessmen to forward a continuing and expanding prosperity.

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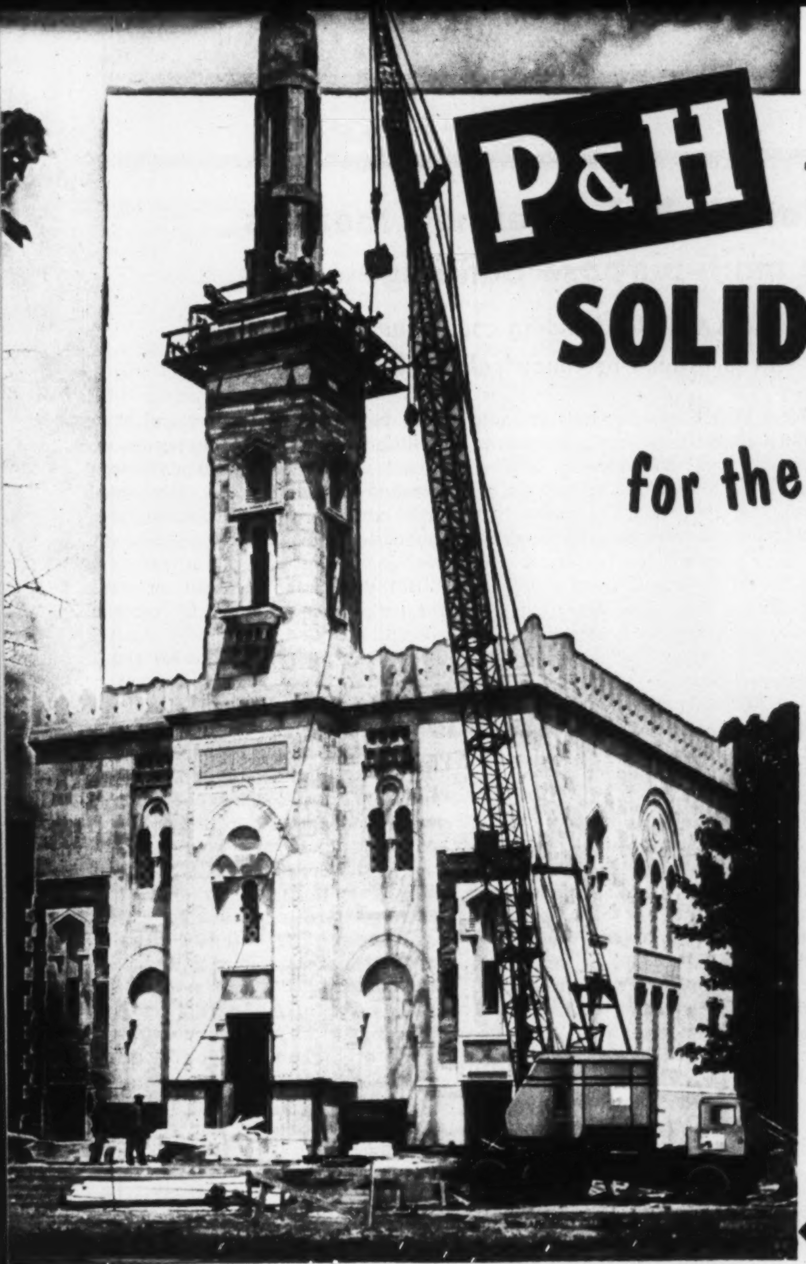

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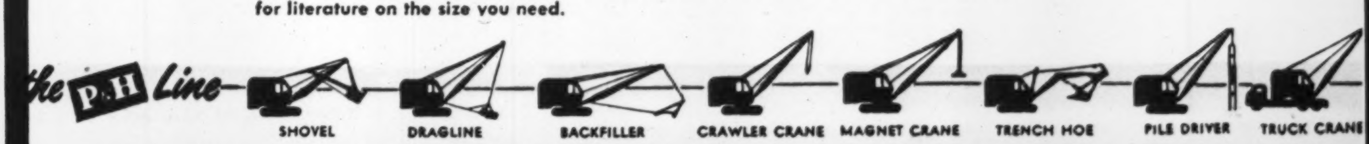

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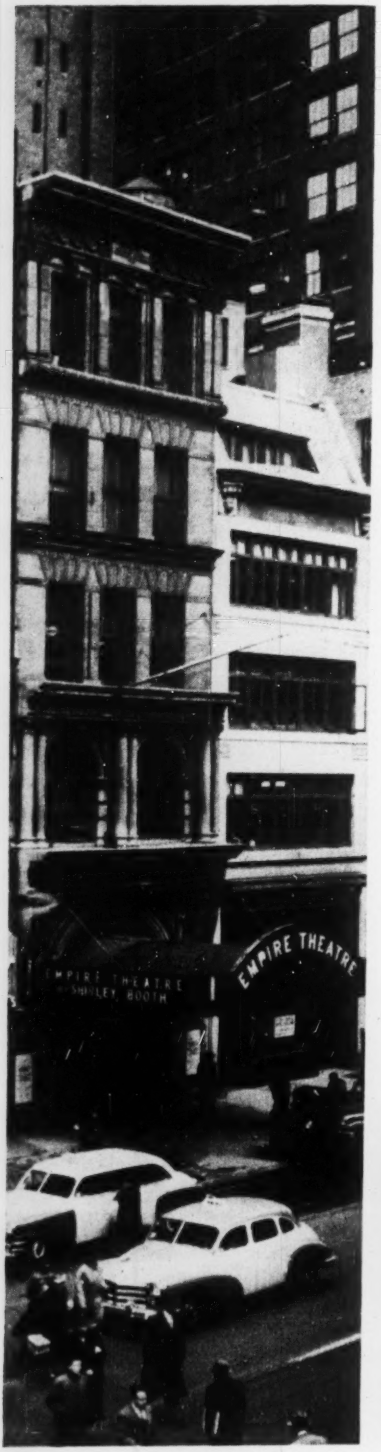
New York may get new theaters in multi-purpose buildings

Plans wait for building code changes; need argued by theatrical people



OLD EMPIRE THEATER on Broadway will be razed soon; lack of plans for replacement worries civic leaders.

New York City's lagging legitimate theater industry—no new theaters in 36 years—could look forward to a revival if building code revisions now before the city council are approved.

The revisions would permit incorporation of theaters in office, apartment and hotel buildings (present code does not permit the stage area to be included in a multi-purpose structure); make it possible to build a theater above or below the street level (thus giving flexibility to the building layout); and for the future, permit smoking throughout the theater area—instead of in lobbies or lounges only, as at present.

Just how much the proposed changes would mean—either in new construction or improved theater business—is open to considerable debate. And the debate has been hot and heavy in the last few years.

Although New York is still rated the country's legitimate theater capital, it now must get along with only 29 stage houses (and will soon lose one—the old Empire Theater) against 75 such houses 30 years ago. There is no doubt that most of the remaining 28 are outmoded and poorly arranged both for audience comfort and stage facilities. And because they occupy extremely valuable real estate in a densely crowded area of the city, they must make comparatively enormous sums of money in a short business season (an average of about 40 weeks a year).

But you can find about as many theater people who argue against new construction or the proposed changes as you can those who are for them. That would apply also to real estate interests. The pros contend that new theaters would make room for more shows, more business, provide better facilities, and attract bigger audiences. The cons argue that a good show can always "find a house," the older houses are adequate, have been modernized sufficiently, and are well known and well located. They also argue that theatergoers are a peculiar breed that has—among other things—a great regard for tradition and certain old-world atmosphere.

• **Staging a change**—Whatever the merits of the proposition, for some months advocates of change in present theater-building restrictions have been staging an effectively managed cam-

ENR photos by Compton

OWNER SHUBERT (20 of New York's 29) isn't sure new theaters are necessary, would like more new hit shows.

Reasons for:

Proponents believe multi-purpose buildings are the only economical way to stimulate new theater construction. High land and building costs, plus increased production expenses, mean theaters cannot be replaced as they are torn down.

Reasons against:

Opponents argue that two over-and-under theaters would be more practicable on one site; best site for one function of multi-pupose building may not be best for other function. Theatrical circles would rather see more hit shows—not more theaters.

paign of publicity. They are also striving to enlist support of the city's government.

The spearhead of the effort has been New York Port Authority Chairman Howard S. Cullman, backer of many successful stage shows (including South Pacific and Life with Father). The advocate in the city council is Hugh Quinn, head of the council's building codes committee and himself a construction veteran.

Cullman has made no secret that a group which he heads is considering plans for a combined office-building-theater just north of the midtown theater district, if the laws can be changed to accommodate it.

• **Economic basis**—According to Cullman, theater construction has lagged because theaters cannot be built economically at today's construction costs. He cited the last theater to be built in New York—the Ethel Barrymore—and said that it cost about $1 million in 1927. Today, he added, the replacement cost, excluding the land, would be about three times as much. "When interest, depreciation and taxes are added," he said, "a theater building (solely for theater purposes) cannot be built without raising admission prices out of economic reach. And a theater has an extra handicap in that it is open for business only about 40 weeks out of the year, or a total of 320 hours."

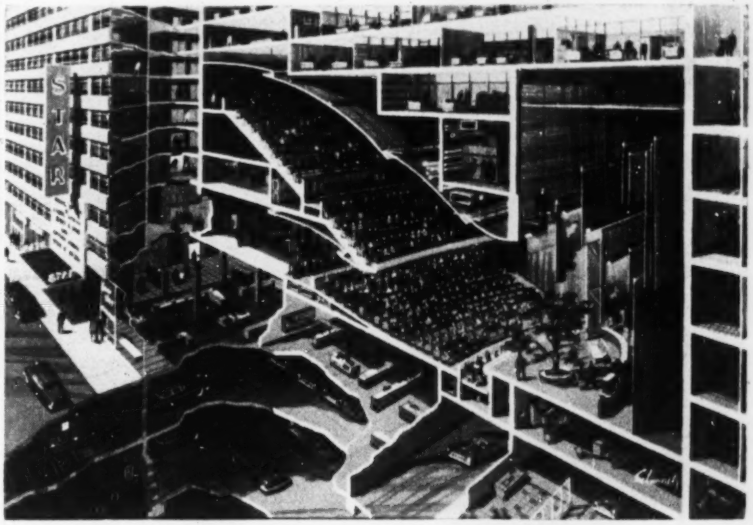
Cullman feels that the only solution is to build theaters as part of an income-producing building. Then the theater section would have to carry only a share of the building costs and expenses.

• **Building requirements**—Legislation covering the necessary changes in the city's administrative code is contained in 22 bills submitted by Quinn, who has been working with the fire department and the department of housing and buildings to get the bills in shape to everybody's satisfaction.

The major changes proposed are provisions for building above the stage area and the location of the theater above or below the street level.

The biggest objection to building over stages has been fire hazard. Under the proposed changes, the stage would be isolated from the rest of the building by four-hour fire resistive walls and ceilings and also would have a flue extending to the roof. The area of the flue would be 10% of that of the stage.

A theater above or below the street level would have exitways separate from the rest of the building. Walk-



MULTI-PURPOSE BUILDING—Architect Jacobs' plan has theater inside office building. Location above street level will leave room for shops on street, and for basement parking. In other arrangements, the theater could be located below street level.

COUNCILMAN QUINN sees civic improvement, is sponsoring new bills and coordinating work with city groups.

ARCHITECT JACOBS sees theater-goers happy with up-to-date auditorium and stage facilities.

THEATER ANGEL Cullman argues that multi-purpose buildings will stimulate new theater construction.

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INVESTOR DOWLING takes exception, prefers two theaters in one building without other functions.

ways to the exits would be isolated and of sufficient size to allow free passage.

Another bill would permit "Continental" seating, with seats extending across the theater in continuous rows. Aisles could then be placed on each side of the theater and the space between rows of seats would be increased to allow easy access and exit.

Other bills pertain to changes in ventilating, passageways, lobbies, and details of fire-resistive construction.

• **Combined facilities**—Cullman's plan also envisages a restaurant and bar in the same building for the combined use of theater patrons and the public. At present, liquor may not be served in New York theaters.

The restaurant, according to the plan, would tie in with parking facilities to be available in the basement of the building—a concession to suburbanites who object to late home-coming by train after the theater.

The "package" offered shows the businessman's wife driving to the city in the afternoon, parking in the theater building, and meeting her husband in the building restaurant for dinner. They would attend the theater and then drive home without the annoying wait for a commuters' train.

• **Theater notes**—New York theatrical circles agree that most of the present theaters could stand a lot of improvement. Complaints are directed against the small lobbies, lack of air-conditioning, poor seating arrangements, and obsolete appearance and facilities.

(Continued on page 55)

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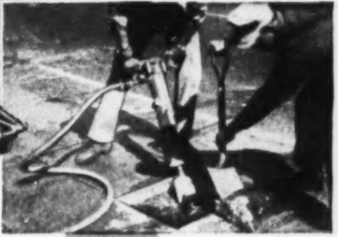

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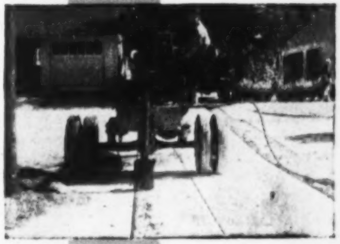

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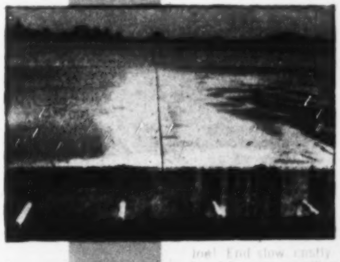

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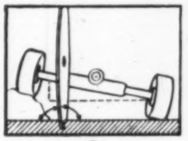

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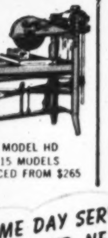

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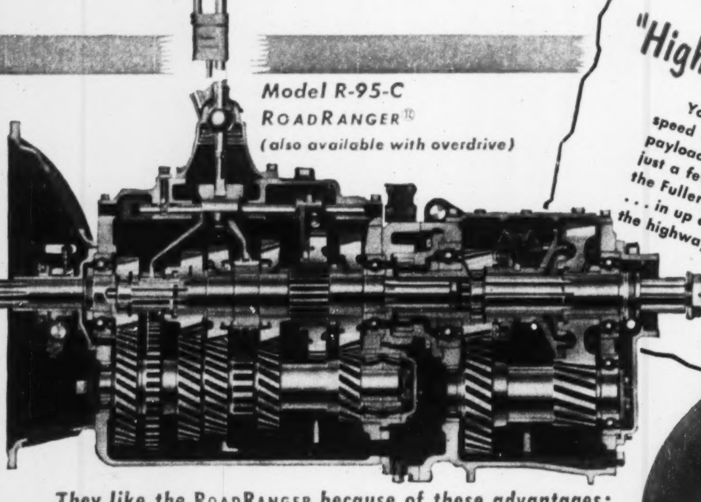

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Architect Robert A. Jacobs—theater enthusiast and developer of a preliminary new-type theater plan—said that the new theaters would incorporate all the latest designs to make the theatergoer happy. In addition, he explained, allowing theaters to be either above or below street level, would permit more flexible planning for shops and other facilities in the building. He sees no congestion because of mingling of office workers and theater-goers.

He added that there was a possibility that this type of construction might encourage future building of large-scale amusement centers.

• **Some disagreement**—Leading theater figures in New York are not all in complete agreement with Cullman's plan, however.

Robert W. Dowling, head of the City Investing Co., which owns several legitimate theaters, believes that a better plan would be to build a separate theater building with two theaters in it.

He defended his position by explaining that in any city there are generally certain areas which are best suited for office buildings and other areas best suited for theaters. With today's high construction costs, he went on, each type of building must be in the most suitable location to attract the high type tenants needed to make it pay. A building offering both office and theater space would have to be located in either a business or a theater area and the area selected might not be best for one or the other function.

He favored the idea of having a res-

(*Continued on page 57*)

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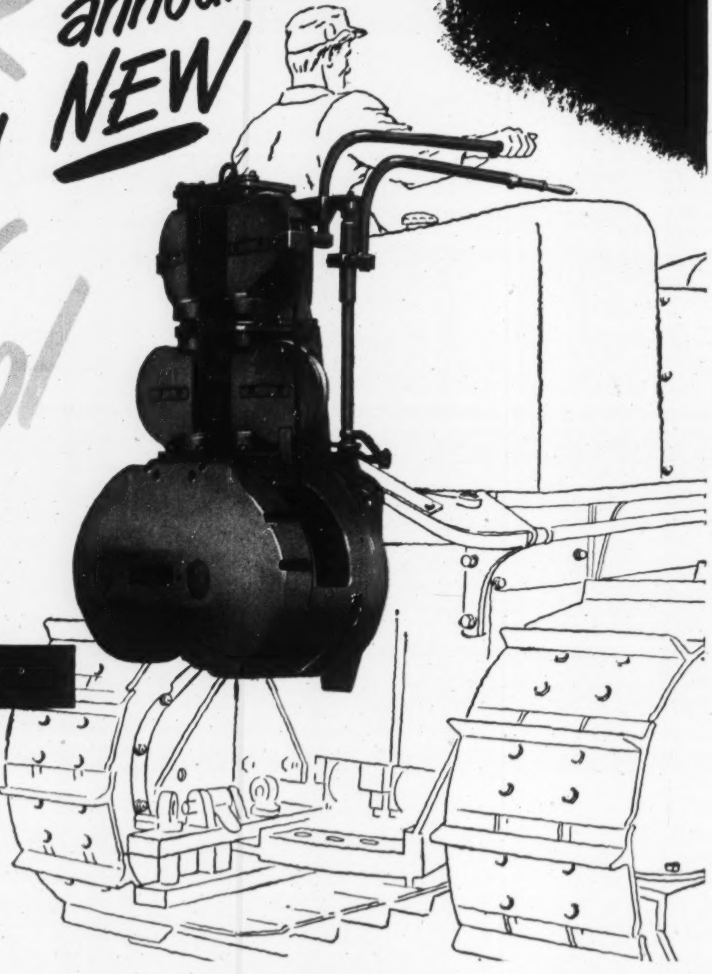

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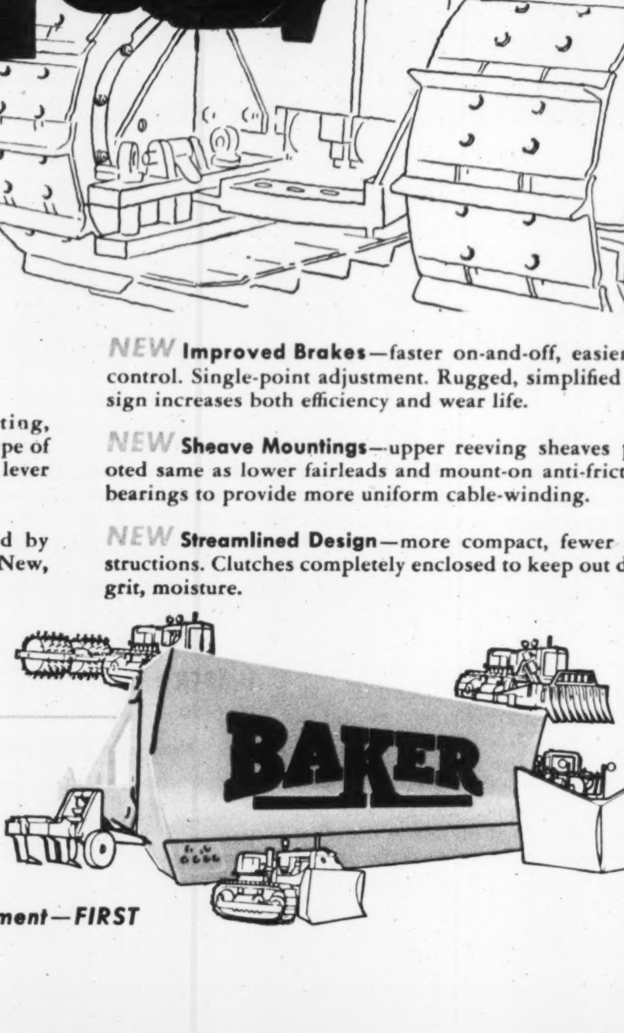

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Always look to Baker for the Next Advancement—FIRST

taurant and bar for the convenience of theater patrons but warned that to succeed these would have to attract trade in addition to that of theater patrons. There just isn't enough drinking and eating by the theater crowd to make the proposition pay from that source alone.

Co-owner with his brother of the largest block of theaters in New York, Lee Shubert is not certain that new theaters are necessary. He explained that there is usually a temporary jam for theaters because most shows are produced at the same time. Once the less successful are weeded out, he said, there are often theaters that are vacant. He said that he never knew of a good show lacking a theater. (At the present time there are at least two shows waiting for theaters in New York.)

Shubert indicated that smoking in theaters might prove a boomerang. Attendance, he said, may increase from people who previously stayed away because of the no-smoking rule but he is afraid an even greater number might find smoking objectionable and stay away because of it. Besides, he added, the lighting of matches is disconcerting to the actors and would tend to destroy the mood of the audience.

He explained that the drop in theater attendance and the resultant reduction in the number of theaters was caused by the impact of movies, television and the depression.

• **Regulations elsewhere**—An ENR survey of leading cities discloses a general agreement on theater-building regulations.

New Orleans is the only city heard from that doesn't allow building over a stage. In the other cities—Boston, Philadelphia, Chicago, Detroit, San Francisco and Los Angeles—theaters may be built as part of other structures provided they are separated from the rest of the building by fire-resistive partitions and have separate exits.

Philadelphia and Detroit both have theaters built into other types of buildings, but none of the cities reported any present or planned construction of this kind.

Dowling mentioned a combination office and theater building in Milan, Italy, that he visited on a tour of Europe. He made the trip expressly to see how combination buildings are treated over there.

The building has two theaters, one above the other. There is a common lobby for both. One theater is for movies and the other for legitimate shows. Dowling claimed the idea worked out very well with little interference among the three units.

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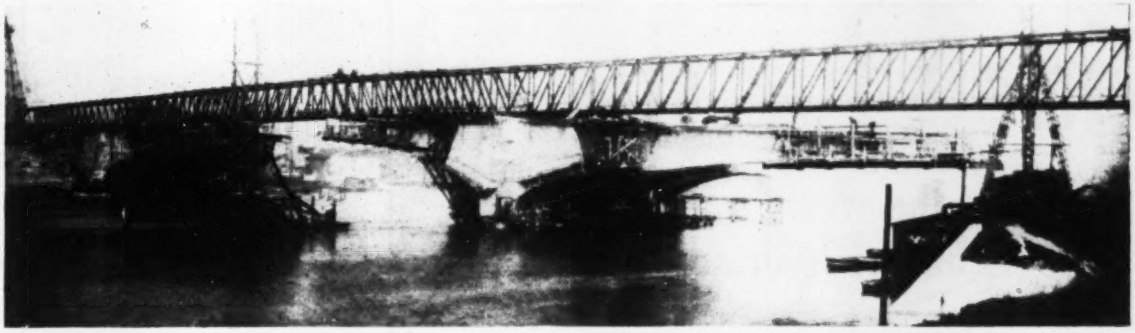


USING A STEEL CENTERING TRUSS, engineers completed one girder at a time balancing operations about the piers.

Reinforced concrete cantilever span held by concrete pins and rockers

FRENCH ENGINEERS have produced an unusual design in reinforced concrete for the $3-million Pont Jacques Boulloche highway bridge crossing the Seine at Bezon, a suburb of Paris.

The bridge is a cantilever structure with a main span of 312 ft and two 176-ft anchor arms. It is made up of four hollow girders, supported at the piers and abutments on reinforced concrete rockers. In addition the cantilever arms are joined in the center of the main span by a 10-in. dia., spiral-reinforced concrete hinge pin.

The girders were built one at a time, the forms being hung from a steel centering truss, and the concreting of the anchor and cantilever arms being balanced about the two river piers. All four hollow girders were joined at the top by a deck slab.

The bottoms of the girders are of variable thickness, and the side walls, spaced 11 ft center to center, are just over a foot thick at the center hinge and widen out at the piers to 3 ft, 3 in. thick. Over the pier the hollow girder is stiffened by interior crosswalls. Rather than one rocker, two rockers support each girder at the pier to reduce moment and deflection in the cantilever arm, and they are set at an angle so that their axes converge at the center of the foundation.

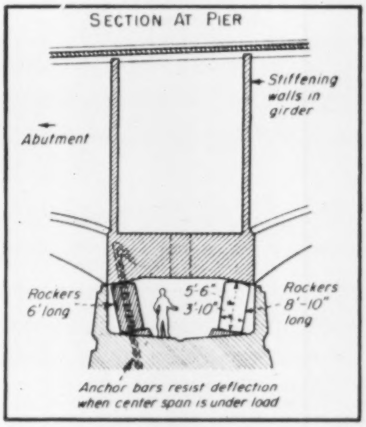
The bridge, with a width of 81 ft between parapets, has a roadway of 59 ft, and 11-ft sidewalks. Space is provided for gas and waterpipes, electric and telephone cables under two steps at the edge of the sidewalk. A mosaic pavement rests on a bed of sand over the girder deck slab.

The elliptical intrados of the main span provides a navigable channel between piers with a clearance of 30 ft at normal water level and 23 ft at highest water level.

An interesting feature in construction of the bridge was the manner in which the caisson work for the piers had to be started. It was found that the limestone bed of the river within the caisson might burst or crack upwards if the pressure on the bed (after the caisson was pumped dry) were not equalized. The solution of the problem lay in 7-ton concrete blocks, lowered through the water to the bottom of the caisson. When the caisson was pumped dry, the blocks were rearranged to comprise the base of the pier. Anchored together by stirrups they were encased in concrete.

The Pont Jacques Boulloche is named for a former director of road construction in the Ministry of Public Works who died in the German prison camp of Buchenwald. Albert Caquot, well known French consultant, designed the bridge, and the contractor was Enterprise Vandewalle.

SLOT FOR CONCRETE PIN, at end of cantilever arm in center of span, will be spread by jacks exerting 264 tons on each girder to admit pin.



Anchor bars resist deflection when center span is under load

PAIR OF REINFORCED CONCRETE ROCKERS at abutment support end of each hollow girder. At the piers single, long rockers are used, extending across the width of each girder. As shown at right, the axes of the rockers for the cantilever and anchor arms are tilted to converge at the center of the foundation.

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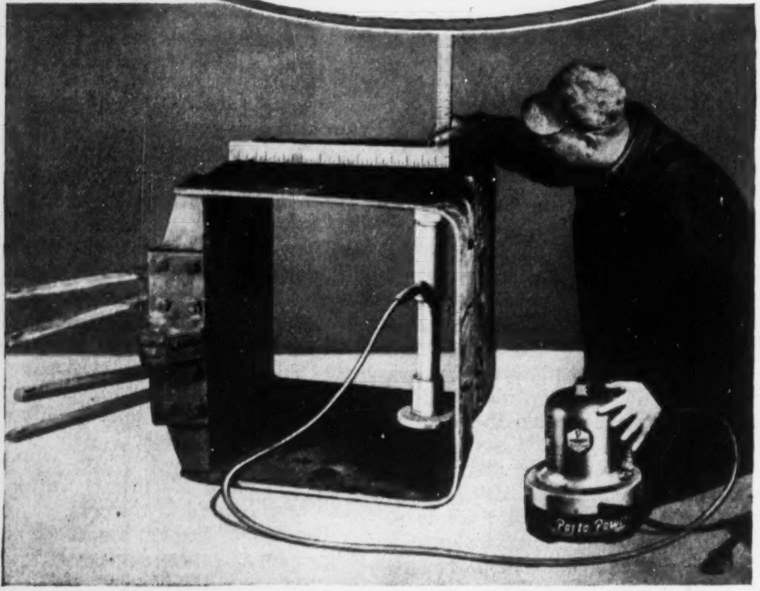

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MEN AND JOBS

Higher salaries

States paying them will be able to keep engineers

The question of pay of state highway department officials is getting serious, according to Harold Aitken, who left his post last week as Nebraska State Engineer to take a job as assistant to Civil Defense Director Val Peterson.

Aitken, who got $7,500 a year in his state post, said that he had received three job offers in less than a week after he announced he was quitting as state engineer. All of the positions offered much larger salaries.

• **Lost**—Aitken noted that within the last year the Nebraska Highway Department had lost its chief highway engineer, its construction engineer, traffic engineer and materials engineer. The department is having trouble finding, and keeping, people at present salary levels.

Meanwhile, it's even possible that Aitken's successor, L. N. Ress, may get not even $7,500. Under one interpretation of the state constitution's provision that the salary of a state official can't be changed more often than once in eight years, Ress may get only $6,500. The legislature boosted the state engineer's salary to $7,500 in 1947, and advanced it to $8,500 starting in 1953. But the state auditor refused to recognize the boost because of the eight-year rule, and this year allowed Aitken a salary at the rate of $7,500 annually.

• **Oregon**—Meanwhile, Oregon's joint legislative committee on ways and means is planning to recommend salary increases for engineering and technical employees of the state. The boosts will run from $10 to $40 a month. They'll be for personnel in the higher salary brackets who were bypassed in pay boosts made last September.

The decision followed testimony before the committee that other states and private industry were luring away Oregon's more efficient technical workers. The Budget Bureau estimated that some 1,200 employees in 40 classifications would be affected, adding about $300,000 a year to the total of their paychecks. Most of those who would get raises are employees of state commissions, and the highways and agricultural depts.

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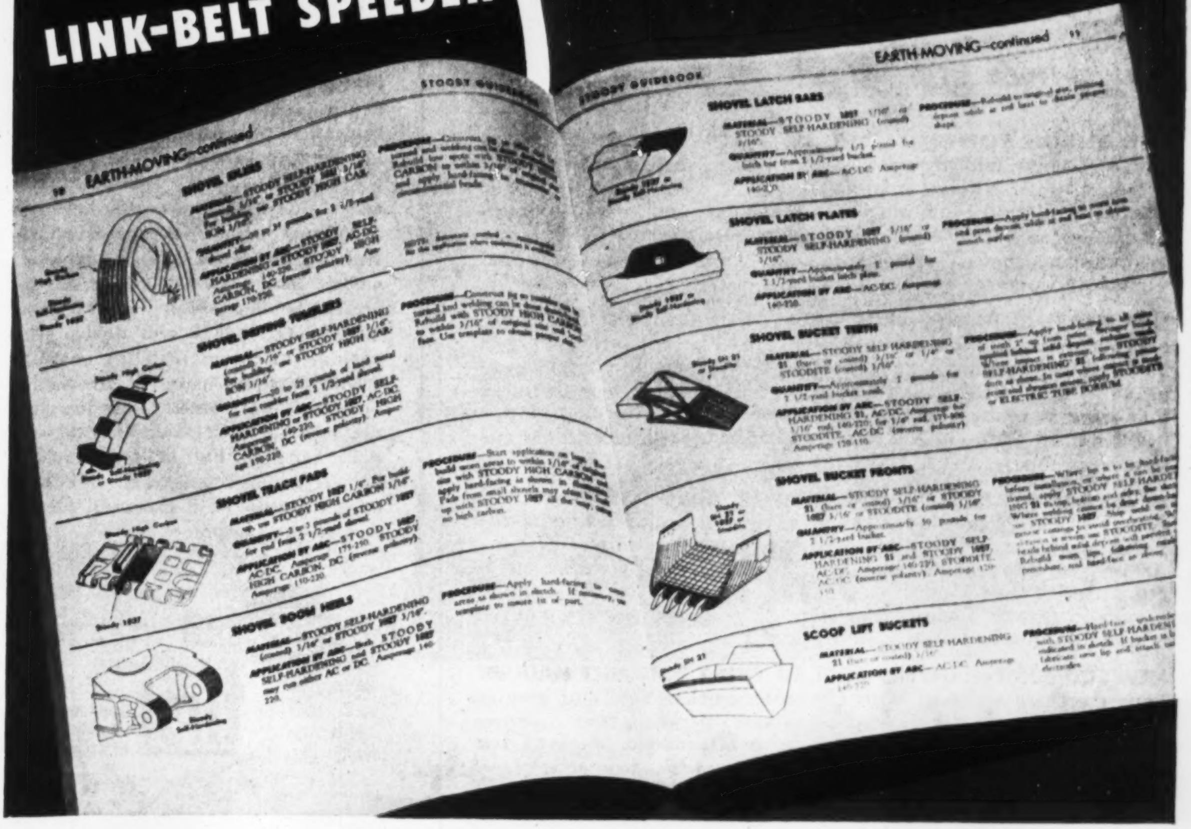
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Top engineers cited by university

At its annual Engineers' Day this week, the University of Wisconsin will honor engineers for their work in different fields. Among those to receive citations are:

Lester C. Rogers, president of Bates & Rogers Construction Corp., Chicago. He has headed the construction firm since 1937.

Julian D. Conover, executive secretary of the American Mining Congress, Washington, D. C., and publisher and editorial director of the Mining Congress Journal. A geologist and mining engineer, he has been with the Congress since 1935.

William E. Schubert, vice-president and general manager of Wisconsin-Michigan Power Co., Appleton, Wis. He has been closely associated with the company's river developments.

N.C.A. honors eight members for safety

The National Constructors Assn., composed of engineering and construction firms who specialize in design and construction of chemical plants, steel mills, and oil refineries, has announced awards to eight member companies for outstanding safety records during 1952. These awards are part of a continuing "safety engineering" program by the N.C.A.

Winners of the safety awards: Bechtel Corp., San Francisco; H. K. Ferguson Co., Cleveland; Fluor Corp., Ltd., Los Angeles; Lummus Co., New York City; Arthur G. McKee & Co., Cleveland; Rust Engineering Co., Pittsburgh, Pa.; Procon, Inc., Chicago; and the Badger Process Division of Stone & Webster Engineering Corp., Boston.

Careers . . .

- **Acquired**—**Jerrold Oakley**, who has been general manager of the Samuel Braen Companies of northern New Jersey, has acquired control of Walker Cement Products Co., Little Ferry, N. J.

- **Appointed**—Gibbs & Hill, Inc., has appointed **John B. Saxe** as chief engineer; **Horace A. Johnson** becomes chief mechanical engineer, and **John G. Barrie** his assistant. **Josiah T. Newcomb** becomes assistant vice-president —Railroads. . . Former Secretary of the Interior Oscar L. Chapman, now a Washington lawyer, has been named a director of the Pennsylvania Coal

(*Continued on page 66*)

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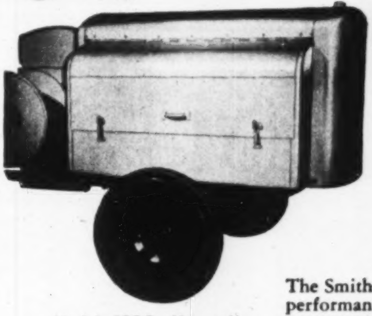
AIR COMPRESSOR



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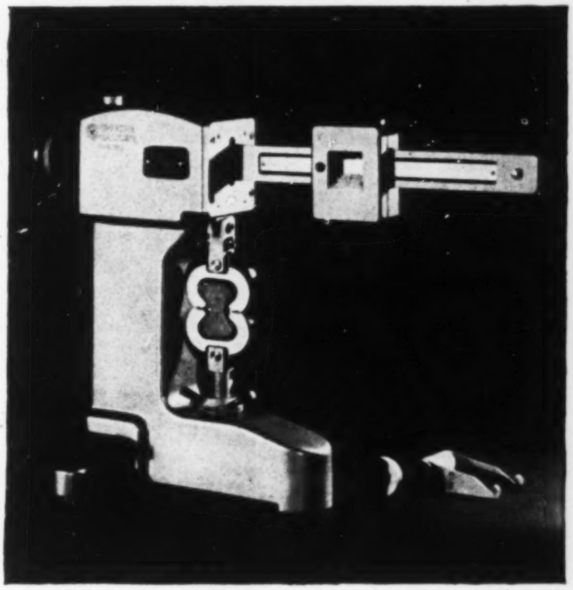

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Complete walls of

More than 7,000 square feet of U·S·S 17 Stainless Steel insulated panels form the complete walls of this new building which is an addition to existing steam generating facilities at the jet engine overhaul line at Olmsted Air Force Base, Middletown, Pa.

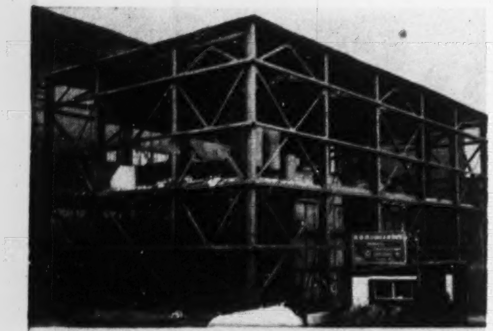
These Stainless Steel panels were installed by a crew of eight men in only 11 working days. One group of four men removed the protective paper and drilled the panels, and a second group of four drilled the girts and bolted the panels into place.

Quick installation like this—*in any weather*—means much lower labor costs. And that's but a part of the dollars-and-cents advantage of using Stainless Steel panel construction.

In the long run, the durability and corrosion resistance of Stainless Steel walls, the light weight in comparison to conventional building materials, the low "U" value or heat transmission factor all indicate that the cost-per-year will be lower than many building materials that may have a slightly lower initial cost.

Best news of all is that U·S·S 17 Stainless Steel for walls is available *now* for use on your current projects. You can obtain it without CMP tickets for use on any authorized construction.

No matter what type of building you have in prospect—factories, mills, warehouses, power plants, service or office buildings—U·S·S 17 Stainless Steel deserves your careful consideration. If you'd like additional information, write for our book, using the coupon below. Remember, United States Steel only produces the Stainless sheet and strip from which panels of this type are made; the panels themselves are fabricated by a number of our customers whose names will be sent you on request.



STRUCTURAL STEEL framework of the building, ready for installation of insulated Stainless Steel panels.

PROTECTIVE PAPER covering that kept the panels completely damage-free during fabrication and shipment is removed with a commercial preparation.

ON THE GROUND, panels are drilled for bolts which are used in erection. Two holes are positioned at the top and two at the bottom of each panel.

TWO MEN handle actual installation of insulated Stainless Steel panels on the building.

THE 24" WIDE Stainless panels backed with 1½" Fiberglas insulation and metal-coated steel inner plate are attached to the building's structural members by four ⅜" x 3" round-head Stainless Steel bolts.

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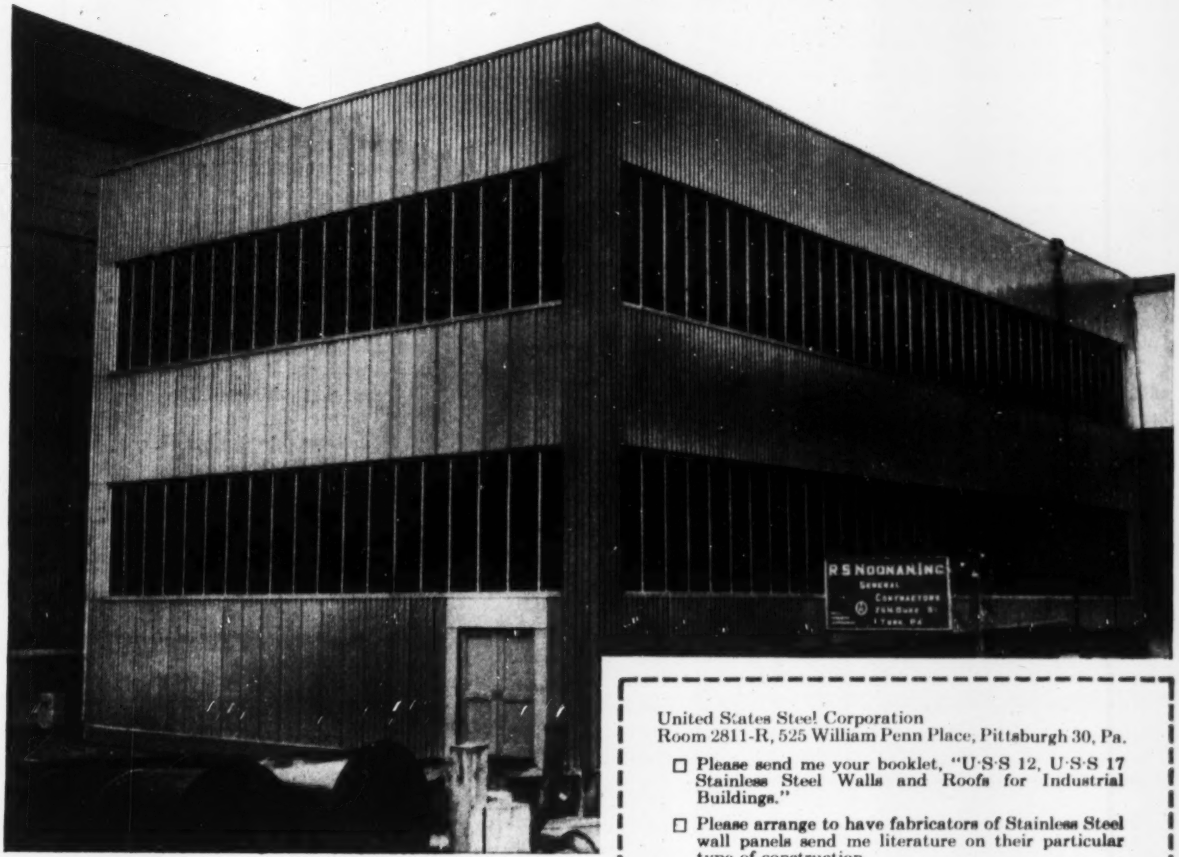

NEARING COMPLETION in this photograph is this addition to steam generating facilities at Olmsted Air Force Base, Middletown, Pa. The 86½′ by 46′ building is sided with panels of U·S·S 17 Stainless Steel. Architect-Engineer: Gannett, Fleming, Corddry & Carpenter, Inc., Harrisburg, Pa. General contractor: R. S. Noonan, Inc., York, Pa. Stainless Steel panels fabricated and erected by H. H. Robertson Co., Pittsburgh, Pa.

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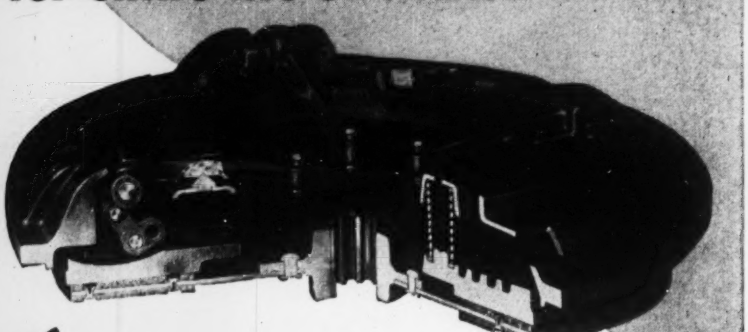
for entire life of friction material



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& Coke Corp. He also will act as a consultant on company development of natural resources. . . **Robert Reindollar,** now serving as president of the American Road Builders Association, has become associated with Gannett Fleming Corddry & Carpenter, Inc., engineers of Harrisburg, Pa. . . **Selwyn P. Bryant,** Greensboro, N. C., construction engineer, has joined Southeastern Construction Co. as vice-president. . . **Clement Humphrey** has been named director of development for the authority . . . **Raymond D. Johnsos,** has been named administrative engineer for water and sewers in Chicago. He'll serve for six months, on leave of absence from Griffenhagen & Associates, management engineers.

• **Elected**—**Harold L. Jacobs,** industrial waste consultant for E. I. du Pont de Nemours & Co., has been elected chairman of the Delaware Water Pollution Commission.

• **Honored**—The University of Missouri has given its Honor Awards for Distinguished Service in Engineering this year to **Stanley Stokes,** vice-president and chief engineer of Union Electric Co., St. Louis; **Roy P. Hart,** chief operating officer of the Missouri Pacific Railroad Lines; **Frederick K. Powell, Jr.,** engineering vice-president of American Machine & Foundry Co.; and **F. Gano Chance,** president of A. B. Chance Manufacturing Co., Centralia, Mo. . . **Col. Henry Crown,** board chairman of Material Service Corp., big building-materials supplier, has received one of the 1953 Horatio Alger awards. . . F. H. McGraw & Co. has received the Award of Honor from the National Safety Council for its outstanding safety record in 1952. . . **Miss Elizabeth Gregory McGill,** Toronto consulting aeronautical engineer, has received the 1953 Award for Meritorious Service to Engineering from the Society of Women Engineers.

• **Announcements**—Clark Bros. Co., Olean, N. Y., has announced a number of top management changes. **C. Paul Clark** moves from president to board chairman, being succeeded as president by **John N. MacKendrick. F. W. Laverty** becomes executive vice-president, and **George W. Probst** vice-president for sales. **Edward G. Beardsley,** becomes engineering vice-president and **Richard F. Moser** becomes vice-president for engineering and manufacturing.

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LOWER INITIAL COSTS Penmetal *Lightsteel* is strip steel, formed into strong structural sections on high speed cold-rolling and punching machines. The cold-rolling process keeps production costs down.

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Studs and joists are pre-cut to any length up to 28 feet; track and bridging comes in standard 20 foot lengths. Newly published, fact-filled booklet gives complete specifications; write for your free copy of Catalog

DOUBLE JOIST
6" and 8"
16 and 14 gauge

JOIST
6" and 8"
16 and 14 gauge

DOUBLE STUD
3¼", 3⅝" and 4"
16 and 14 gauge

STUD
3¼", 3⅝" and 4"
16 and 14 gauge

PENN METAL COMPANY, INC.
205 EAST 42nd STREET • NEW YORK 17, NEW YORK

OBITUARIES

Charles T. Vose, 89, who 7 years ago retired as a civil engineer with the Maine Central Railroad, died at Braintree, Mass., on March 24. He was graduated from the University of Maine in 1887.

Bertram H. Lawrence, 70, died at Cleveland, Ohio, March 25. He was graduated from Clemson College in 1903. He began work with the American Bridge Co. in 1904. Two years later he transferred to American Steel and Wire as a draftsman. Subsequently he held a number of engineering positions in Chicago, Cleveland, Worcester, and Pittsburgh before being made chief engineer of American Steel and Wire in 1928. Prior to his retirement in 1948, Mr. Lawrence had been vice-president—engineering of United States Steel of Delaware since 1938.

Thomas J. Lucas, 67, partner in the consulting engineering firm of Lucas & Luick, died in Chicago March 17. He planned and directed the construction of an explosives plant in Baldwinsville, N. Y., during World War II.

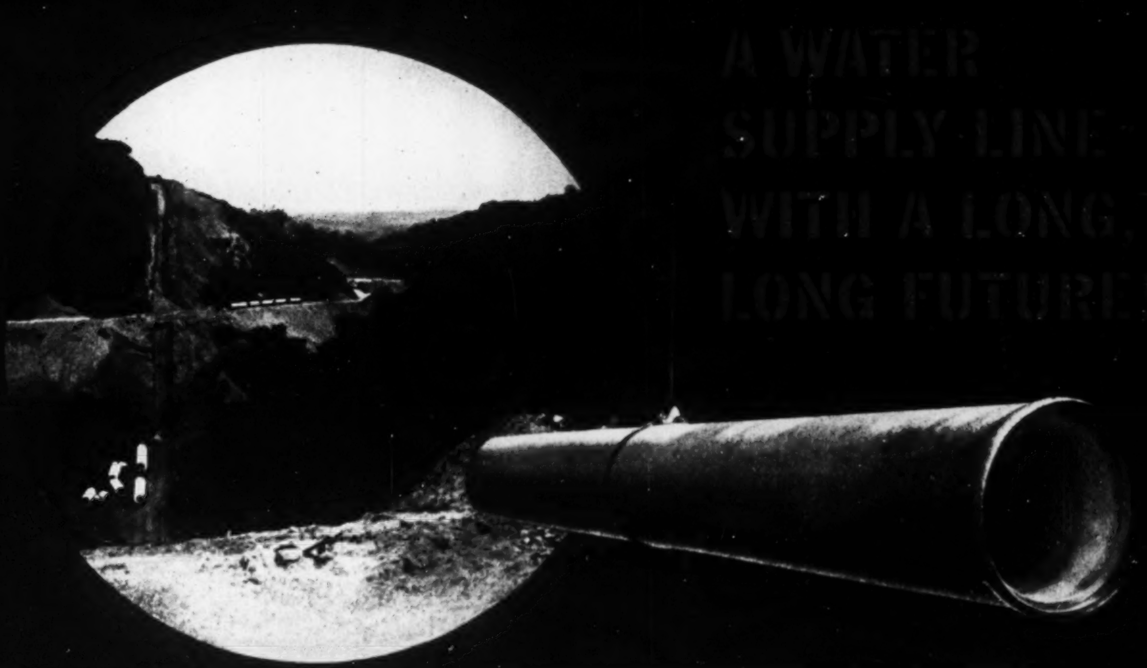
Grover C. Brooking, for many years deputy engineer for Belmont County, Ohio, died Feb. 16 at Saint Clairsville, Ohio. He was a graduate of Virginia Polytechnic Institute, and served in the U.S. Army in the first world war. Lately he was with C. C. Smith Sons Engineers, Inc., of Wheeling, W. Va.

George J. Roden, 61, of Scotch Plains, N. J., a civil engineer graduate of Columbia University, died in N. Y. City March 18. His career included work in structural steel, blast furnace design, bridge construction, and mechanical power transmission equipment sales.

Fred W. Eno, 87, retired city engineer of Buffalo, N. Y., died March 19. He was employed by the city from 1893 to 1906. After some time with the old International Railway Co. he rejoined the city engineering department and retired as an assistant engineer in 1932.

Burt J. Sinks, 86, who paved streets in about 42 states, Canada and Mexico, died March 25 in Buffalo, N. Y. He entered the paving business about 1885 with the Barber Asphalt Paving Co. of which he became superintendent. He took the same job with the Warren Bros. Paving Co. about 1901.

A WATER SUPPLY LINE WITH A LONG, LONG FUTURE!



...because it is being built with REINFORCED CONCRETE PRESSURE PIPE

FORESIGHT FOR SANTA BARBARA

The line you see above is the South Coast Conduit near Santa Barbara, California, designed by the U. S. Bureau of Reclamation. It utilizes over 75,000 feet of 27" and 30" American Concrete Cylinder Pipe and over 50,000 feet of 48" Lock Joint Concrete Cylinder Pipe, both manufactured especially for this pipe line by American Pipe and Construction Company.

The South Coast Conduit snakes over and through the mountains east of Santa Barbara, California ... as a part of The Cachuma Water Project. Engineers specified Reinforced Concrete Pressure Pipe for this great water supply project which will provide for the future water needs of the Santa Barbara area.

DESIGNED TO ENDURE

Reinforced Concrete Pressure Pipe, used on this important installation, has a high resistance to corrosion and oxidation. The steel, being embedded in a dense concrete wall, is not exposed to corrosive agencies ... the concrete actually increases in strength with age. The combination of these two features produces a pipe of great strength and durability which, when placed in service, becomes a permanent installation requiring little or no future servicing.

The ease with which Reinforced Concrete Pressure Pipe is installed and joined, using standard contractor's equipment, is an important economy factor which should be considered when appraising the comparative costs of various classes of pipe.

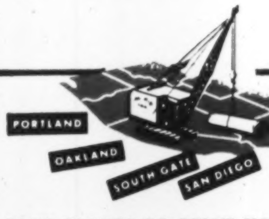
This pipe has initial and *sustained* high carrying capacity. Its smooth interior walls insure against future loss of capacity and eliminate costly cleaning and relining work.

Reinforced Concrete Pressure Pipe is, in every sense, a pipe designed for a long useful life ... a PERMANENT and economical part of water supply lines which are designed to endure.

LET OUR EXPERIENCE HELP YOU

Our 50 years of experience in design and manufacture ... and our continuing program of research and development in this field ... are available in helping your community plan its water projects wisely.

Direct your inquiries to any of our plant offices, and be assured of an immediate reply ... plus informative bulletins on the type of reinforced concrete pressure pipe that will best meet your needs.



FOUR PLANTS TO SERVE YOU

American manufactures four classes of reinforced concrete pressure pipe in diameters ranging from 12 inches to 12 feet, and for all pressures related to modern American water works practice.

American
[illegible]

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Line
P. O. Box 3428, Terminal Annex, Los Angeles 54, California
Main Offices and Plant—4635 Firestone Boulevard, South Gate, California
District Offices and Plants—Oakland, San Diego—Portland, Oregon

Here's how BENDIX *conserves dollars for the*

Bendix makes scores of products profitable to this field

Bendix Increases the Reliability and Economy
of all types and sizes of trucks

No one appreciates better than a construction engineer that time means money. Working always with an eye on the clock and calendar, he is justifiably impatient of any delay caused by equipment breakdown. Trucks must travel, bulldozers must work, and power tools must function day after day regardless of operating conditions.

That is why producers of power equipment for this exacting industry turn so frequently to Bendix for the basic components of the machines they sell. Built by the foremost specialists in their respective fields, these quality parts have rolled up a record of endurance unmatched elsewhere. They are the surest protection of a manufacturer's reputation and a constructor's timetable that can be provided—as evidenced by these highlight examples:

Trucks—Bendix makes trucks perform better for a longer time with fundamental braking systems proved by billions of stops . . . Hydrovac,* the world's most widely used power brake . . . Air-Pak, the foremost unit for converting air power into hydraulic braking action . . . and a complete line of brake blocks and lining. Engine components include starter drives, carburetors, filters, and America's most reliable electric fuel pump. Power steering and various other hydraulic and vacuum controls round out a list of the most rugged components of their kind.

Off-the-road Vehicles—Bendix adds reliable, cost-cutting performance to earth-moving equipment of all kinds with the world's most widely proved starter drive . . . with Zenith* Carburetors tailored to the job and the vehicle . . . with diesel fuel injection units proved in vitally important installations . . . with fuel and oil filters and replacement filter units from the originator of micronic filtration . . . and with brakes and brake lining meeting all specifications. Hydraulic needs are covered with power steering units assuring quick reaction, jolt-free handling and easier driving as well as control valves, lift assemblies and disconnect couplings utilized on the finest equipment in the field.

Bendix Adds Ruggedness
to earth-moving equipment

Power Tools—Anything powered by gasoline—saws, cement mixers, compactors, pumps, hoists, lighting plants, and compressors—can profitably employ Bendix products. Bendix flywheel and flange-mounted magnetos, built by the leading producers of aircraft ignition equipment, assure a hot, instant spark in all weather and temperatures. Zenith Carburetors fit all needs, including angle operation. Together they provide your best guarantee of 'round-the-clock operation at peak efficiency.

Bendix Enhances the Dependability
of construction power tools

Mobile Radio—As you would expect of the most trusted name in radio, Bendix builds two-way mobile radio equipment unmatched in field tests for sensitivity, reliability and watt output for current input. Moreover, a special electronic squelch cuts out noise to assure performance as true and sharp, from 20 miles and more, as a home radio. Equipment includes rugged, compact units for installation in vehicles, powerful fixed stations and reliable walkie-talkie units for use on the project. Bendix field engineers are fully qualified to help contractors obtain a license and to set up a system meeting the needs of any construction job. This quality equipment works equally well as

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The Finest Picture Science
has ever Produced.

PRINCIPAL DIVISIONS | **BENDIX RADIO:** auto, railroad, mobile, aviation radio; radar; television. **RESEARCH LABORATORIES. ECLIPSE MACHINE:** Stromberg* carburetors; electric fuel pumps; starter drives; coaster brakes. **RED BANK:** dynamotors; inverters; special vacuum tubes. **PACIFIC:** telemetering; hydraulic and electrical actuators; magnetos for small and large marine and industrial engines; diesel fuel injection; electrical connectors. **BENDIX-ECLIPSE**

CONSTRUCTION INDUSTRY

BENDIX SPEEDS THE WORK
with powerful 2-way radio

a factory communication system. And the cost is no higher than for ordinary equipment.

This is Bendix in the construction field —builder of products that conserve dollars by conserving time. Yet this is but a fraction of the Bendix contribution to industrial progress. The more than 4000 engineers and 23 manufacturing divisions of Bendix produce hundreds of products profitable to industries of every type. Find out how Bendix creative engineering can make your present products more valuable, help you develop new lines, and cut production costs. Send for the 40-page book "Bendix and Your Business."

Executives, Engineers—For a copy of this valuable book, please write on your company letterhead to Bendix Aviation Corporation, 1100 Fisher Building, Detroit 2, Michigan.

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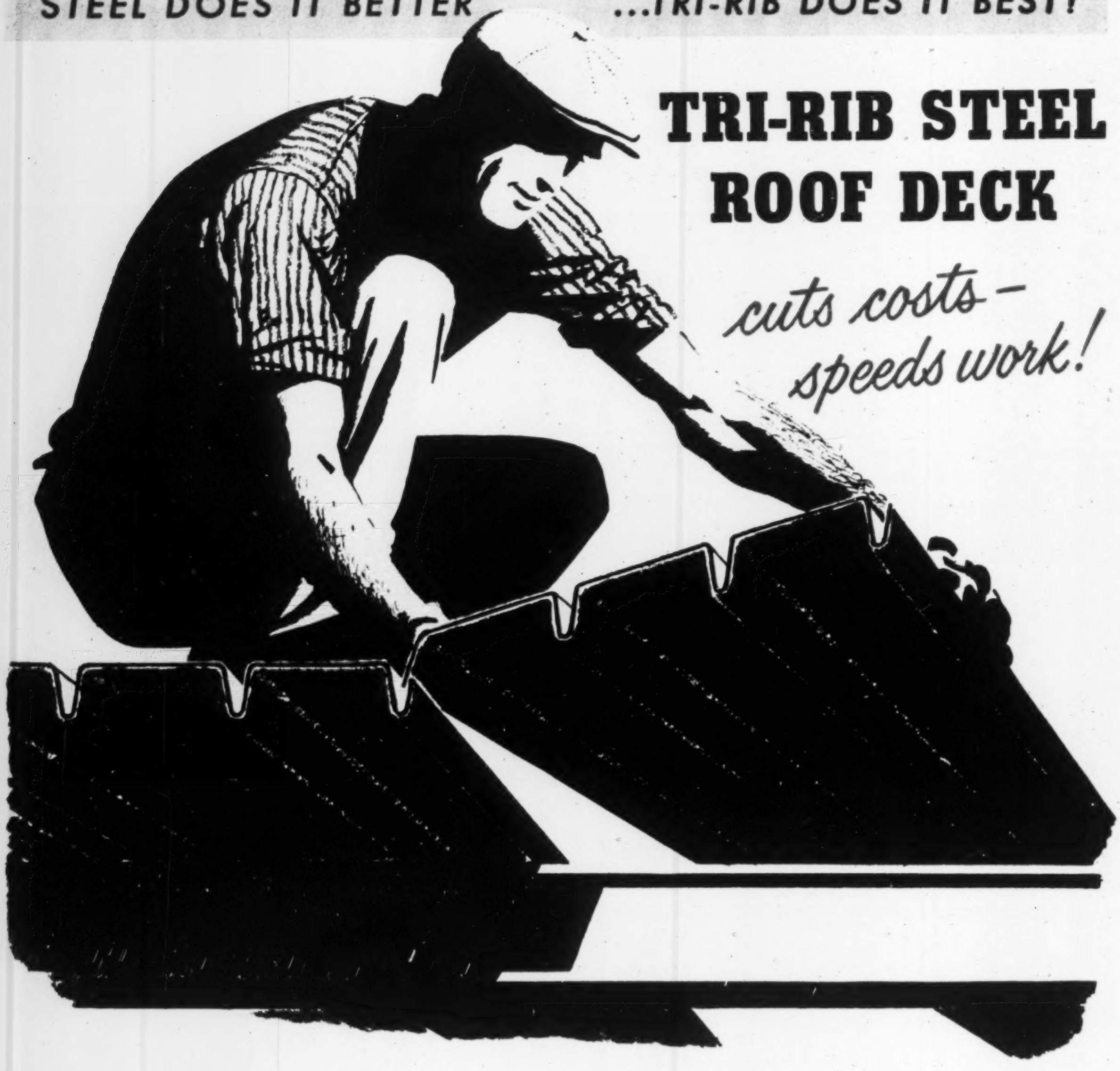
Bendix
AVIATION CORPORATION
THE NAME MILLIONS TRUST

BENDIX PRODUCTS: automotive brakes; power steering; carburetors; aviation brakes; landing gear; fuel metering. **BENDIX AVIATION**
MARSHALL-ECLIPSE: brake blocks; brake lining. **ECLIPSE-PIONEER:** aviation instruments and accessories; foundry. **FRIEZ:** weather instruments.
depth recorders. **ZENITH* CARBURETOR:** heavy duty and small engine carburetors. **SKINNER PURIFIERS:** filters. **SCINTILLA MAGNETO:** aviation;
OF CANADA, LTD.—Windsor, Ontario. **BENDIX INTERNATIONAL**—72 Fifth Ave., New York 11, N. Y. Cable "Bendixint" New York. *REG. U.S. PAT. OFF.

STEEL DOES IT BETTER ...TRI-RIB DOES IT BEST!

TRI-RIB STEEL ROOF DECK

cuts costs— speeds work!



LESS TIME! Grooved for easy, end-over-end attachment, Tri-Rib sheets are quickly fastened to purlins by welding. And Tri-Rib's 18-inch width, in lengths up to 22 feet, make it ideal for fast coverage of large areas.

LESS MONEY! Tri-Rib's lighter, stronger sheets actually *cost less* than comparable types of roof decking. And, because it *is* lighter, you can use *lighter* supporting structure.

LESS STEEL! Tri-Rib's lighter weight reduces dead load up to 22 lbs. per square foot; permits use of fewer columns, shallower footings, eliminates the need for sub-purlins.

LESS MAINTENANCE! A Tri-Rib Steel Roof Deck, properly installed, will last the lifetime of the building. Made of rugged, corrosion-resistant Cop-R-Loy Steel and further protected by a baked-on coat of high quality Zinc Chromate Iron Oxide Primer, Tri-Rib requires little up-keep.

Designed in accordance with specifications adopted by A.I.S.I. for light gauge structures, dated January, 1949. For specifications, consult Sweet's Files, or write us.

Metal Lath for Strength... Plaster for Beauty!

W
Wheeling

WHEELING CORRUGATING COMPANY • WHEELING, WEST VIRGINIA

ATLANTA BOSTON BUFFALO CHICAGO COLUMBUS DETROIT KANSAS CITY
LOUISVILLE MINNEAPOLIS NEW ORLEANS NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

LEGAL

Varying quantity of work

"Provisions in contracts made by municipalities and others, calling for a definite quality and quantity of construction, and permitting changes by way of reduction and increase, have received judicial interpretation, so that their meaning is now well understood, as is shown by the testimony of the engineers in this case. In Salt Lake City v. Smith, 104 F. 457, this court said of them (page 466):

"'The customary provisions in such contracts that the corporation or its engineers may make any necessary or desirable alterations in the work, and that the contractors shall receive the contract price fixed by the engineer for the work or materials required by the alteration, is limited in the same way by the intention of the parties when the contract was made to such modifications of the work described in the contract as do not radically change its nature or its cost. Material quantities of work required by such alteration, that are substantially variant in character and cost from that contemplated by the parties when they made their agreement, constitute new and different work, not governed by the agreement for which the contractors may recover its reasonable value * * *.'

"The reluctance of the courts to extend the meaning of such provisions so as to give the right to make such changes as are contended here is natural. If municipal corporations may enter into contracts calling for definite construction and are then permitted to reduce or increase the amount of construction to any extent they see fit, all safeguards thrown around the making of such contracts become futile; the contract can be let only at an excessive figure, because no contractor can tell how many men or how much equipment or material to furnish."[1]

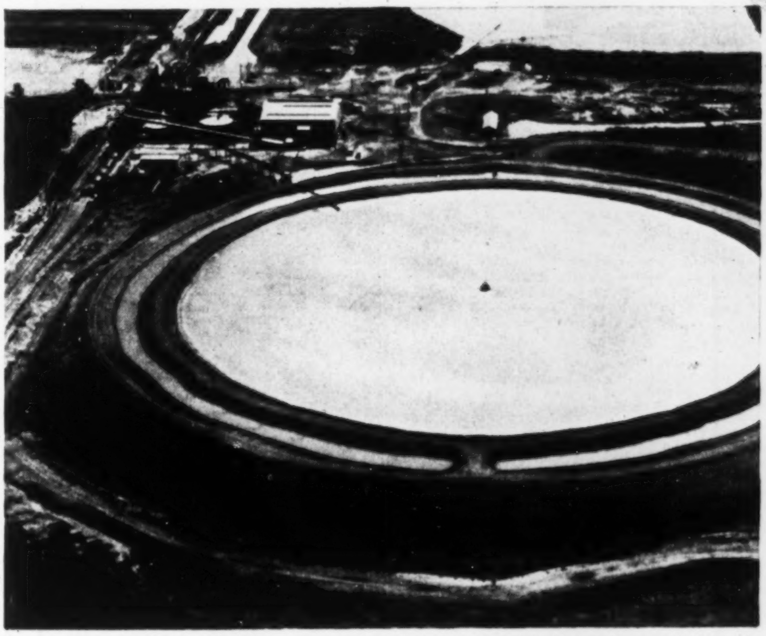
In the above case the proposal for bids provided for the installation of approximately 16 miles of tile drain. When the work was actually performed, the amount of this work was cut down to about 7½ miles. The court held that the contract provision authorizing an increase or deduction in the quantity of work to be done did not authorize such a radical change in the quantity of work to be done.

(1) Drainage District No. 1 v. Rude, 21 F. 2d 257.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

SOLVED:

a 900,000 gallon-per-hour problem!



Largest installation of its kind in the world, this sedimentation unit handles 900,000 gallons per hour.

Problem was to clarify phosphate rock tailings carrying 2% solids — on a budget. Our answer, after thorough field study and testing, was this special 300 foot dia. Dorr Thickener mechanism installed in a 750 foot earthen basin. The results — economically accomplished — are an overflow suitable for re-use and an underflow thickened to 12-15% solids which can readily be impounded.

And sedimentation isn't the only unit operation where our specialized equipment and knowledge pays off.

Regardless of whether your process involves the separation of finely divided solids in suspension, the use of ion-exchange or fluidizing techniques, Dorr and its Associated Companies abroad can provide the right equipment for your specific job.

Better tools TODAY to meet tomorrow's demand

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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
May Materials, and Labor Prices will appear in May 7, 1953 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. *C/L* lots cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.87	$3.56	3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.87	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	11.45
Birmingham	3.26	2.96	....	2.38n	2.38n	2.08n	2.50	2.50	1.15	1.35	.165	.165	10.45
Boston	4.16	3.84	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.365	.22a	11.50h
Chicago	3.48	3.17	...	3.25‡b	3.25‡b	3.65‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.09‡c	2.14‡c	2.24‡c	2.44‡e	2.44‡e	....	....	.21	.225a	10.95
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.81a	3.81a	3.15‡	3.15‡	....	.23	13.90d
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	...	....	.125e	.215	9.30
Denver	4.04	3.74	4.04	1.85	2.00	1.20	....	....	...	....	.23	.255a	10.50
Detroit	3.47	3.20	3.25	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.70f
Kansas City	3.30[t]	3.03[t]	3.15[t]	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.20ag	.215e	11.35b
Los Angeles	4.32a	3.80a	4.92	2.11a	2.31a	2.06a	2.06a	2.16a	....	....	.125fm	.23m	10.43lh
Minneapolis	3.95d	3.64d	3.56	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.21ik	....	12.15fi
Montreal	3.16ac	2.96ac	....	3.00	3.00	2.25	1.65ij	1.90ij	....	....	.20	.20e	9.65eko
New Orleans	3.35	3.02[t]	3.18[t]	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	4.01	3.70	3.53	2.65bk	2.65bk	1.75bk	2.50bl	2.50bl	....	....	....	....	12.30an
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.53/3.58‡	2.75‡	2.75‡	2.35‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32[t]	3.04[t]	3.32[t]	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.22d	12.50
St. Louis	3.47/3.68b	3.04/3.30b	3.20/3.44	3.10am	2.90am	2.50/2.90am	1.70j	1.70j	1.50	1.50	.215	.215ei	10.40
San Francisco	3.36[t]	2.96[t]	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.27cl	10.70e
Seattle	3.75a[t]	3.25a[t]	4.50h[t]	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.40j

‡Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *d* Dealers sell only LCL. *h* LCL. [t] Subj. to revision.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¾". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots and. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18. *l* F.o.b. plant San Rafael. *m* F.o.b. yard.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *d* 1–3 mi. zone. *e* 2,000 lb concr. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Eff. 4/15/53.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.75†	Buffington, Ind.	$2.70†	Steelton, Minn	$2.80†	Muskegon, Mich	$2.85†	Toledo, O	$2.75†
Clinchfield, Ga	2.75†	Independence, Kan	2.65†	Leeds, Ala	2.60†	Saginaw, Mich	2.75†	Milwaukee, Wis	2.90†
Kingsport, Tenn	2.75†	Hannibal, Mo	2.70†	Duluth Minn	2.80†	Wyandotte, Mich	2.75†	Green Bay, Wis	2.90†
West Des Moines, Iowa	2.80†	Northampton, Pa	2.75†	Hudson, N. Y	2.75†	Buffalo, N. Y	2.75†	Ironton, O	2.75†
Nazareth, Pa	2.75†	Universal, Pa	2.80†	Alpena, Mich	2.65†	Oswego, N. Y	2.90†	Montreal City	2.66
Bath, Pa	2.75†	Waco, Tex. (+ 10¢ tax)	2.65†	Detroit, Mich	2.75†	Cleveland, O	2.75†	W. Winfield, Pa	2.80†

† *Prices to hold for second quarter of 1953.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	58.00‡	.....	22.00i	.....	.0809i	0.15i	.09iw	.17iw	.09i	.09i	0.12i
Birmingham	......	45.50i	.....	......	.....	......	.....	......	......	......	......	......
Boston	......	......	.....	24.50a	35.50a	22.00av	35.50av	......	......	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16bw	.075b	.....	......
Cincinnati	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....
Cleveland	200.00	55.00d	5.03g	23.00[A]	.....	23.00[A]	....	.1025[A]w	.....	....	.11[A]	.18[A]
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	....	26.82v	.....	.117w	.....	.0925	.....	.2811r
Kansas City	e	e	e	16.50cl	...	.055	.....	.07cw	.....	.0585c	0.435	.....
Los Angeles	e	.....	e	16.00dmz	...	16.00dvz	...	18.00dz	.....	17.00dv	.0825j	.1725j
Minneapolis	.....	.....	2.97h	25.07	....	24.07	.....	.0894w	.....	.0794	.0935	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.193n	16.30nu	18.80nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	.....o	.085ew	.....o	.0825[B]	.085	....
New York	.....	.....	3.12f	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.21	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68f	....	.1698	.....	.0865/.089v	.....	0.15	.0975	.....
San Francisco	.....	55.00e	.....	17.50g	33.00gp	17.50gkv	23.00gkv	20.00g	37.50g	18.75v	.085y	.....
Seattle	.....	.....	.....	17.00h	37.50h	16.25hv	.....	19.50h	...	18.50hv	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat. *i* 3 x 3⅝ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery; Inglewood, Calif. *k* 50–110 penetr. [l] Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40–85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85–300 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks. *y* F.o.b. Oakland. [A] F.o.b. refinery, Cleveland. [B] F.o.b. Norco, La.

(*Continued on page* 77)

Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

PIPE LINE CREWS encounter all kinds of conditions from deep woods to the congested streets in the heart of a large city's business district. This cast iron pipe installation could be either a water supply line from a mountain reservoir or a sewer force main leading to a remote treatment plant. If it were a gas transmission line it would, of course, be mechanical joint pipe.

U. S. cast iron pipe in sizes from 2-inch through 24-inch are cast *centrifugally* in metal molds with bell-and-spigot, mechanical joints and plain ends. The *pit cast* process is used in producing all sizes of flexible joint and flange pipe as well as all pipe 30-inch and larger. Highly developed production controls guard the uniformly high quality of U. S. Cast Iron Pipe.

United States Pipe and Foundry Co.,
General Offices, Burlington, N. J.
Plants and Sales Offices Throughout the U. S. A.

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE
AND INDUSTRIAL SERVICE

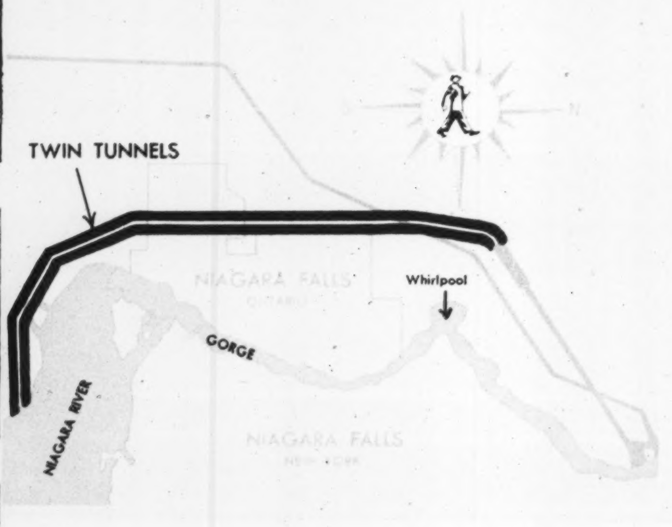
Full heading after both top heading and bench have been excavated. Excavated dia.—51 ft.

Main Jumbo for driving top heading—mounts 17 T-350 long-feed drifters on Joy Hydro Drill Jibs.

Jumbo for bench drilling—suspended from roof supports—mounts 13 Joy T-350 long feed drifters.

8 Joy WN-102 compressors—referred to by contractor as "ultimate in compressor usage."

Series 1000 Axivane Fans in ventilation arrangement. Tracks permit adding fans as desired.



PROGRESS REPORT ON THE WORLD'S LARGEST TUNNEL

SIZE Twin Tunnels 51' Dia., 5½ mi. length.

LOCATION Niagara Falls, Ontario.

EQUIPMENT USED (All Joy Installation):
114 T-350 Drifters on LW-6A Feeds on Hydro Drill Jibs.
24 WN-102 Semi-Portable Air Compressors.
Series 1000 Axivane Fans—added as needed to maintain air volume.

The world's largest tunnel is being bored out of *solid rock* with the help of Joy rock-drilling equipment, ventilating fans and air compressors.

4,375,000 cu. yds. (9,923,000 tons) of rock will be excavated to form the huge twin tunnels. These 5½ mile tunnels will convey water from the upper Niagara River beneath the city of Niagara Falls, Ontario, to a point near the Whirlpool Rapids, well below the Falls. Water thus diverted for hydro-electric power purposes would supply the water needs of 200 million people!

This is the first large tunnel operation where drilling has been mechanized. The "All Joy Equipment" installation confirms Joy's position as leader in the heavy construction and tunneling equipment market. **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Consult a Joy Engineer

JOY

WORLD'S LARGEST MANUFACTURER OF UNDERGROUND MINING EQUIPMENT

W&D C-4587

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ⅞-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	STEEL RAILS Per Net Ton Re-rolled	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$3.85	$3.90	$3.95	$7.85	....	$75.50	$85.00	Not available	$4.925	$6.65	$4.775	....
Chicago Area	3.85	3.90	3.95	7.85	$4.675	75.50	85.00		4.925	6.65	4.775	....
Pittsburgh Area	3.85	3.90	3.95	7.85	4.675	75.50	85.00		4.925	6.65	4.775	$9.85
Buffalo Area	3.85	3.90	3.95	7.75	4.675	75.50	85.00	....	4.925	6.65	4.775	9.85
Cleveland	....	....	3.95	7.85	4.675	......	......	....	....	....	....	9.85
Youngstown Area	....	....	3.95	....	....	......	......	....	....	6.65	....	....
Geneva	3.85	3.90	....	....	....	......	......	....	....	....	....	....
Los Angeles	....	....	....	....	....	......	......	....	....	6.65	....	..
Pueblo	4.30	4.70	4.75	....	....	75.50	95.00	....	4.925	6.65	4.775	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	REINFORCING BARS Rail steel	REINFORCING BARS Add switch	REINFORCING BARS $/cwt for Del.	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATHk Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCINGd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	WELDED FABRIC REINFORCINGd 4x12 in., No. 8 & 12 wires	WELDED FABRIC REINFORCINGd 6x6 in., No. 6 & 6 wires
Atlanta	$7.31	$7.11	$7.11	$.025	$...	$38.00‡	$42.00‡	A.P.M.* Joliet, Illinois, Donora, Penn., $2.81 F.o.b. Mill: Monessen, Penn., $2.81	A.P.M.* Joliet, Illinois, Donora, Penn., $1.96 F.o.b. Mill: Monessen, Penn., $1.96	A.P.M.* Joliet, Illinois, Donora, Penn., $2.95 F.o.b. Mill: Monessen, Penn., $2.95
Baltimore	6.47	6.44l	....	....	....	42.00	45.00			
Birmingham	5.95	5.80	5.80	.05	.15	47.00p	52.00p			
Boston	6.56a	6.92	6.92	....	....	40.00	43.50			
Chicago	5.95	5.33ff	5.33ff	.0625	....	46.00C	51.00C			
Cincinnati	6.42ak	6.63r	....	....	.15	37.50szee	41.00szee			
Cleveland	6.28	5.31v	....	—	....	36.50‡	39.00‡			
Dallas	9.05	7.25	7.25	—	....	49.00	52.00			
Denver	7.55	7.50c	....	—	—	50.00s	62.00qs			
Detroit	6.42	6.64n	....	—	.20	53.00	58.00			
Kansas City	6.70nn	6.97	....	—	—	36.00	40.00			
Los Angeles	6.70fhh	6.57g	....	—	....	48.00	54.00			
Minneapolis	6.51hh	7.60ll	7.60ll	....	....	36.00	39.00			
Montreal	7.00iB/7.00A	4.90i	4.90g	....	....	58.00h	64.00h			
New Orleans	....	5.98ok	....	.05	....	66.00	60.00			
New York	6.77	6.71	6.71	—	.30	38.50st	42.50st			
Philadelphia	6.42	6.67	....	—	....	39.50‡	43.50‡			
Pittsburgh	5.80/6.00	5.80/6.00	....	—	.10	37.60	39.60			
St. Louis	6.35a	5.95c	5.95c	....	....	50.00aa	55.00aa			
San Francisco	7.25	6.65l	....	—	....	40.50	43.50			
Seattle	4.50e	5.80el	....	—	—	‡57.00smm	47.00smmz			

* At Producing Mill

‡ Delivered. b Less than 700# add 50¢; 700–1499# add 65¢; 1500 to 7999# add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivered in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq. yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed. 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1⅛ in., 1¼ in., 10¢, ⅞ in., ¾ in., 15¢, ⅝ in., 25¢, ½ in., 50¢, ⅜ in., 80¢, ¼ in., $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000–19,999 lbs. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. # 10 tons to CL. a 2000–9999 lbs. A. Amer. struct'l shapes. B. Canadian shapes. C. Deliv to contractor.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft.; f.ob. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	VITRIFIED SEWER PIPE std. 12 in. s.s.	VITRIFIED SEWER PIPE 24 in. ds.	VITRIFIED SEWER PIPE 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE 24 in.
Atlanta	$101.00	$1.44	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$1.23	$2.62
Baltimore	121.50	1.46	2.42	.546	1.053	4.275A	11.3775A	178.20	274.80	.90	2.45
Birmingham	101.00	1.44	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25m	2.75m
Boston	113.00	1.46	2.20	.553uvx	1.0665uvy	4.41uvy	11.90uvy	187.80v	289.20v	1.55mg	3.80mg
Chicago	107.00	1.44	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.46	2.29	.567y	1.093y	4.32y	11.175y	164.40	254.10	.75m	2.80m
Cleveland	108.00	1.46	2.29	.49x	.999x	3.96x	10.66x	158.00m	245.65m	.75m	2.95m
Dallas	112.00	1.46	2.54	.436	.822	3.234b	9.17b	......	......	.49	1.60
Denver	115.00	1.55	2.54	.43dd	.74dd	3.18dd	....	......	......	.74m	2.50m
Detroit	108.00	1.46	2.29	.72	1.39	5.58	14.91	240.00m	360.00m	.80	3.20
Kansas City	113.00	1.46	2.29	.515	.92	3.64	9.20	216.70	465.00	.70g	3.00g
Los Angeles	126.67	1.53	2.29	.51f	1.07f	5.24f	13.06f	228.20f	348.90f	.95	2.75ff
Minneapolis*	112.00	1.50	2.42	.72mo	1.32mo	5.32mo	....	......	......	1.38h	3.93h
Montreal	110.00	....	....	.85z	1.50z	5.25z	....	......	......	1.17j	3.11j
New Orleans	101.50	1.44	2.42	.513	.93	5.15	....	265.00bb	455.00bb	.65	2.29
New York	111.35	1.46	2.20	.62	1.20	4.81	12.60	......	......	1.15	2.75
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55h	3.75h
Pittsburgh	109.00	1.46	2.20	.428m	.794m	2.97m	7.92m	149.00	232.00	1.05h	2.50h
St. Louis	112.00	1.46	2.29	.51	.93	3.65	9.21	160.00l	360.00l	1.20il	2.70hl
San Francisco	122.00	1.55	2.29	.61d	1.20d	5.03d	12.57d	240.00l	400.00l	.73	3.02
Seattle	124.00	1.55	2.42	.51b	.91b	....	....	150.00c	......	.86ee	2.56ee

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. b Extra strength ASTM C 200–44T. c 4-in., $90. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76–41. h Reinforced, ASTM C75–41. i Reinforced, ASTM C76–37. j Centrispun. No. standard specifications in Can. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13–40. v C.L.f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60–1941 specifications used. aa *Extra strength ASTM C 200–50.* A standard strength. * 6", $1.67 per ft.; carlots, F.o.b. track Class 150. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL delivered, f.o.b. truck. ee 1% off for cash. ff 21.

*WROUGHT STEEL PIPE

(Full standard weight)

Mill	2½ & 3 in., Butt Weld† Black %	2½ & 3 in., Butt Weld† Galv. %	3½ to 6 in., Lap Weld† Black %	3½ to 6 in., Lap Weld† Galv. %
Lorain, Ohio	40.0	26.25	....	....
Aliquippa, Pa.	40.0	22.25	33.0a	15.25a
Sparrows Pt., Md.	38.0	21.25	28.0a	10.75a
Benwood, W. Va.	40.0	21.75	34.75c	16.0c
Youngstown, O.	40.0	23.25	....	....
Indiana Harbor, Ind.	39.0	22.25	32.0ab	14.75a
Sharon, Pa.	40.0	21.25	....	....
Wheatland, Pa.	40.0	20.75	33.0a	13.75a
Etna, Pa.	40.0b	19.25b	34.75c	13.5c
Fontana, Calif.	27.0b	13.25b	19.0ab	4.75ab

† Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09, 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 25.75, galv + 57.0; 1¼ in. black, + 25.75, galv. + 56.5, 1½ in. black, + 19.25 galv. + 52.75; *Lap Weld* — 2½ in. to 3½ in. black + 26.25. galv. + 55.5; 4½ in. to 8 in. black + 23.0, galv. + 50.75. Freight rates to destination to be added to name delivered price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft.

(Prices in italics)

LONG LEAF Y. P. Merchantable grade up to 20 ft.

PLYWOOD Rail freight increment (See note for base *price*)

		1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	Long Leaf 2x12 Rgh	Long Leaf 12x12 Rgh	Plywood ⅝"	Plywood ¾"
Atlanta	†	$79.00	$82.50	$73.50	$76.00	$79.50	$83.00	$81.00	......	......			$22.32	$27.24
Baltimore	*	96.00	99.00	78.00	78.00	78.00	82.00	97.00	......	......	$155.00	$155.00	25.92*	31.60*
		104.50g	*104.50g*	*100.00g*	*103.00g*	*103.00g*	*103.00g*	*105.00*	*$117.50*	*$117.50*				
Birmingham	†	83.50	83.50	70.50	80.50	83.50	85.50	95.50			115.50	155.50	21.78	26.58
		85.50	*85.50*	*80.50*	*79.50*	*78.50*	*78.50*	*85.50*	*85.50*	*85.50*				
Boston		101/106a	104/110a	95/101n	96/106n	98/108a	100/112a	...	......	......	......	......	25.92*	31.60*
	3	*98.00n*	*98.00*	*102/104*	*102/104*	*102/104*	*102/104*	*112.00*	*110/112*	*120.00*				
Chicago	**	100.00	105.00	92.00	100.00	101/102	105/106	105.00	......	......	134.00	134.00	22.45*	27.37*
		100.00	*101/102*	*103/104*	*107.00*	*108/109*	*108/109*	*110.00*	*110.00*	*110.00*				
Cincinnati	*	99.00	105.00	88.00	98.00	105.00	110.00	122.50	......	......	145.00	145.00	25.00*	30.48*
		115.00	*115.00*	*117.00*	*115.50*	*117.00*	*115.00*	*145.00*	*145.00*	*145.00*				
Cleveland	**	96.00	99.00	87.00	93.00	99.00	102.00	......	......	......	......	......	25.37*	30.93*
		......	......	*101.00*	*102.00*	*102.00*	*102.00*	*118.00*	*118.00*	*118.00*				
Dallas	k†	78.00	80.00	69.00	58.00	59.00	59.00	......	......	......	97.00	98.00	18.72	22.80
Denver	*	*Not in stock*		*128.00*	*128.00*	*126.00*	*130.00*	*135.00*	*156.00*	*156.00*	......	......	13.92	16.98
Detroit	‡	110.00	115.00	101.00	110.00	114.00	118.00	...	......	......	......	......	25.00*	30.48*
		101.50	*102.50*	*105.50*	*106.25*	*105.25*	*104.00*	*118.75*	*122.50*	*122.50*				
Kansas City	*	122.00	122.00	122.00	122.00	122.00	122.00	......	......	......	.....	.....	16.56	20.16
		122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*				
Los Angeles	1	*98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*114.00*	*124.00*	*114.00*	......	......	16.61*ab	20.25*ab
Minneapolis	#	*130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*	......	......	19.89*	24.25*
Montreal		ab85.00	90.00	85.00	90.00	100.00	100.00	......	......	......	......	......	.....	.....
		175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*				
New Orleans	†	100.00	100.00	92.50	85.00	90.00	94.00	118.00	......	......	150.00	148.00	18.72	22.80
	†	*99.50*	*103.50*	*112.00*	*112.00*	*110.00*	*109.75*	*101.00*	*120.00*	*112.00*				
New York	3	107/112	110/115	110/115	115/120	120/125	125/130	150/160	......	......	210/240	210/240	25.92*	31.60*
				Range from $115.00 to $120.00				*130/145*	*144/155*	*144/155*			.....	.....
New York	**	92.00	95.00	82.00	95.00	97.00	100.00	120.00	......	......	190.00	190.00	...	...
		96.00	*96.00*	*99.00*	*99.00*	*99.00*	*99.00*	*106.00*	*115.00*	*115.00*				
Philadelphia	‡			Range from $114.00 to $127.00				114/127	......	......	200/210	200/210	25.92*	31.60*
				Range from $125.00 to $150.00				*130/140*	*150.00*	*150.00*				
Pittsburgh	†			Range from $90.00 to $95.00			110/120	110/120	......	......	110/120	115/125	25.92*	31.60*
				Range from $110.00 to $120.00			*130/140*	*130/140*	*140/155*	*140/155*	......	......		
St. Louis	f	c109.00e	111.00e	100.00d	109.00d	112.00e	118.00e	......	......	......	......	......	18.72	22.80
		......	......	*112.00d*	*118.00e*	*118.00e*	*118.00e*	*165.00e*	*165.00*	*185.00*				
San Francisco	A†	*68.00*	*68.00*	*70.00*	*69.00*	*68.00*	*66.00*	*68.50*	*68.50*	*68.50*	......	......	12.22*a	14.91*a
Seattle	†	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*85.00g*	*85.00g*	*85.00g*	......	......	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. and.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *l* 8–10 ft. lengths. *n* ⅓ #1, ⅓ #2 & ⅓ #3.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅝", $179.00; on ¾", $202.00. Exterior plyform ⅝" $199.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	WINDOW GLASS B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2315
Baltimore	76%*d*	78%*d*	.2315
Birmingham	83%	83%	.1790
Boston	79-10%	79-10%	.2315
Chicago	78%	78%	.2315
Cincinnati	78%	78%	.2315
Cleveland	78-10-10%	78-10-10%	.2715
Dallas	75%	75%	.2390
Denver	81-5%	81-5%	.2365
Detroit	78-10-10%	78-10-10%	.2315
Kansas City	80-10%	80-10%	.2365
Los Angeles	75%	80%	.2340
Minneapolis	78-10%	78-10%	.2365
Montreal	40-25%*bc*	40-10-5%*b*	21.60*hi*
New Orleans	78%	77%	.2365
New York	82-10%	82-10%	.3975*g*
Philadelphia	78%	80%	.2315
Pittsburgh	82%	82%	.2040
St. Louis	80-10%	80-10%	.2365
San Francisco	70%	70%	.2315
Seattle	75%	78%	.2340

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; *a* Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $23.35. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
(except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 – .1915	.2165– .224	.2365– .244
Rocky Mtn. States	.184 – .1965	.2165– .224	.2365– .249
Pacific N. W. States	.1815– .194	.214 – .2265	.234 – .2465
Pacific S. W. States	.179 – .1865	.2115– .214	.2315– .2365

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt:	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	..
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak *i*	....	...	....	...
	Pine *i*	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	...	3.60*a*	....	4.60*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.08	...	3.90	....
	Red Oak	2.98	3.67*a*	3.72	4.78*a*
	Sap Pine or Cypress	3.48*a*	....	4.54	....
San Francisco	Douglas Fir	2.20*e*	3.25*ef*	2.92*bf*	4.30*caf*
Montreal	Birch or Maple	....*h*	...*h*	....*h*	....*h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.10
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.85

(*Continued on page 81*)

Why specify "WARMED-OVER" AXLES designed prior to World War II?

To meet today's more exacting transportation requirements

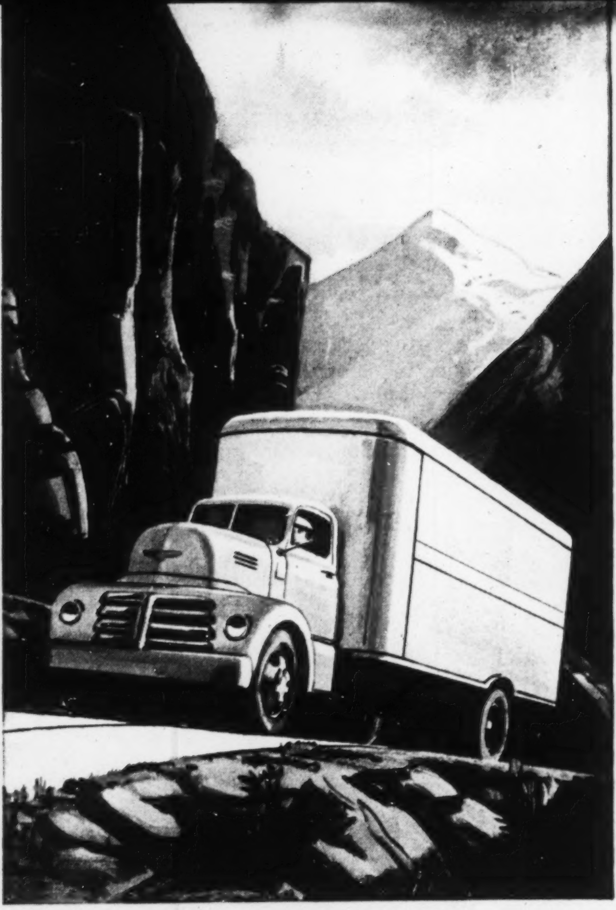
GO MODERN! GO HYPOID! GO... The Accepted Standard TDA CO AXLES

TDA builds the only "family" of advanced-related design front and rear axles and six-wheel units in a complete range of capacities for motor trucks and buses. Also trailer axles and brakes.

THE TIMKEN-DETROIT AXLE COMPANY • Detroit 32, Michigan

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

PLANTS AT: Detroit and Jackson, Mich. • Oshkosh, Wis. • Utica, N.Y. • Ashtabula, Kenton and Newark, Ohio • New Castle, Pa.



Hypoid Gearing

CUTS TRUCK MAINTENANCE COSTS —ADDS EXTRA MILEAGE

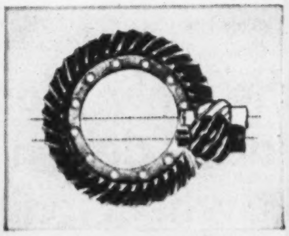
Years were spent in developing, testing and proving Hypoid for use in heavy-duty trucks

Truckers today are getting more miles per truck, under tougher operating conditions, than ever before. Such major improvements as Hypoid gearing, developed and built by TDA, are increasing truck life and reducing maintenance in spite of the heavy schedules of a defense economy.

Used on many makes of automobiles for more than a decade, Hypoid gearing is strictly a postwar development in medium- and heavy-duty truck axles. TDA, realizing its inherent advantages, spent years developing and testing before the first Hypoid-geared truck axles were placed in mass production. Today, only TDA offers Hypoid gearing in all three types of final drives—single-reduction, double-reduction and two-speed double-reduction—in a complete range of capacities.

Although a relatively new development, Hypoid truck axle gearing has been fully tried and proved. Billions of ton-miles have been rolled up in actual on-the-job operation since it was first introduced to truckers by TDA a few years ago. Find out why you should insist on rugged, dependable Hypoid gearing in the next medium- and heavy-duty trucks you buy. Write to TDA for an informative, illustrated booklet on Hypoid gearing.

A COMPLETE "INDOOR PROVING GROUND" makes it possible for TDA engineers to test heavy-duty truck axles under the same conditions as those that are actually encountered on the toughest stretches of America's highways. Truck axle torques and speeds can be reproduced, and repeated accurately, time after time. Advanced engineering facilities like this enable TDA to design and build the finest truck and bus axles in the world.



HYPOID PINION IS OFFSET FROM THE CENTERLINE OF THE GEAR. As a result the pinion is bigger and stronger. Bearings are bigger. More teeth are in contact, reducing loading per unit of contact area. Torque transmitting capacity is increased. Slower gear ratios are practical without loss of strength.

The Accepted TDA CO *Standard* ®

AXLES

THE TIMKEN-DETROIT AXLE COMPANY
Detroit 32, Michigan

WORLD'S LARGEST MANUFACTURER OF AXLES FOR TRUCKS, BUSES AND TRAILERS

PLANTS AT: DETROIT AND JACKSON, MICH. • OSHKOSH, WIS. • UTICA, N.Y. • ASHTABULA, KENTON AND NEWARK, OHIO • NEW CASTLE, PA.

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, In paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00k	41.00k	30.00	21.00	....
Birmingham	126.00p	142.00p	237.00r	284.00p	.....	.....	25.50ff	28.00gg	26.37	17.10	.
Boston	196.00†	209.00†	392.00†	383.25†	......	.....	34.50p	37.50p	30.00†	28.00†	.
Chicago	135.00	145.00	280.00	.....	.....	.....	23.00	25.00	30.80	26.00	....
Cincinnati	185.00j	195.00j	340.00jdd	......	......	......	34.50j	46.00j	26.37j	24.62j	.....
Cleveland	172.00**	183.00**	......	.....	......	......	32.00	32.00	25.50	23.50	31.00ee
Dallas	......	118.00	.....	......	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	40.00	34.80bb	28.00bb	34.00bb
Detroit	127.75	136.25	255.55	......	317.25	362.60	35.25cc	33.60cc	32.50	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	27.00	26.50	30.50	24.50	27.00
Los Angeles	r	r	r	r	r	r	24.50§	.....	34.00	34.00	35.00
Minneapolis	171.50p	192.50p	386.00p	192.50wp	......	......	32.00rp	36.00	38.00bbe	28.00bbe	40.00bbde
Montreal	165.00aq	181.00au	325.00au	......	....	......	38.50	44.00	34.80	32.50	24.60u
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	138.70h	147.90h	203.40ch	221.90hn	......	......	35.00	.....	36.00	32.00	...
Philadelphia	126.30	134.80	252.60	302.74	361.35	......	32.00	42.00	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	257.50	317.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	139.00cc	160.00cc	232.00cc	316.00cc	......	......	40.00sl	36.00s	.85saa	.70saa	1.20aaspee
San Francisco	156.85a*	177.10a*	235.30dda*	......	......	......	37.00	.....	26.60	26.60	2.65m
Seattle	175.00cc	190.00cc	......	190.00ccw	......	......	39.00s	49.00s	37.50shh	1.45#	3.90mhh

† F.o.b. yard Roxbury. a Smooth. b Per 50 lb. bags. c 6 x 12 x 12 in.-3 cell. d Pulverized hot. e 5%, 10th following month. g 5½ x 8 x 12. h F.o.b. trucks, job site N.Y.C. j Truck load or over. k $1.00 discount l Red face. m Per bbl., 180 lb. n 7½ x 7½ x 12. Speed title. p Truck lots. q Provincial and Municipal tax extra. r Not used because of earthquake danger. s 2% discount for cash. t 5½ x 8 x 11½. u Tax exempt. v Sand lime. w 5 x 8 x 12. y Stacked. z Pebble lime price per 80 lb. sack. aa Price per sack. Lime not sold per ton. bb LCL. cc Truck delivery. dd 6 x 12 x 12. ee Pebble lime. ff 80% common. gg Select. hh LCL. § F.o.b. yard. # Per 60 lb. sack, no incr., ton price no longer quoted. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums			ROOFING SUPPLIES Carload lots f.o.b. factory				
			Graphite b	Aluminum c	Ferric Oxide d	Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl per ton
Atlanta	$16.00	$28.275	....	....	....	....	....	....	....	.....
Baltimore	15.75	27.90	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	16.00	28.275	3.90	3.40	....	2.80	2.75	2.75	....	42.00ee
Boston	15.75	27.90	....	...	....	2.67gg	2.79og	2.79og	.42g	45.70g
Chicago	15.75	27.90	....	..	....	2.73‡u	3.04‡o	3.04‡o	38.00‡bbr	43.00‡
Cincinnati	15.75	27.90	..	....	....	2.50	2.50	2.50	.42y	46.56
Cleveland	15.75	27.90	2.39pgg	2.83gg	2.33gg	2.90q	2.90o	2.90o	.43y	37.00hh
Dallas	16.00	28.65	....	4.05	....	3.50q	3.75o	4.35o	.36	46.00
Denver	16.25	28.40	3.07	5.15	2.87	3.31o	2.65o	2.65o	.43ff	47.00
Detroit	15.75	27.90	2.35	3.40	2.50	2.75	2.50j	2.50	.51	40.00
Kansas City	15.75	28.02	....	2.71ys	2.65	2.50	2.50o	2.50o	.313*	48.00
Los Angeles	15.75	28.15	3.30*	4.50*	4.20*	2.48*	1.66e*	l	.55*	l
Minneapolis	15.75	29.88/28.02	....	....	....	2.40idd	2.50hidd	2.50hidd	.42idd	40.70v
Montreal	....	21.95	2.95Dff	4.05Eff	3.35Fff	4.85t	3.65tf	3.65tf	1.24kt	3.78kt
New York	15.75	27.90	....	....	....	2.50	2.50o	2.50o	.42z	40.70*
Philadelphia	15.75	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	15.75	27.90	2.65	2.85	3.15	2.69	2.93o	2.93o	.33	45.00
St. Louis	15.75	27.90	....	....	....	2.50	2.50h	2.50h	.33y	41.70
San Francisco	15.75	28.15	2.40	....	3.40	2.95	4.00aa	....	.49	...
Seattle	15.75	28.40	2.96m	2.80m	....	3.58mqcc	3.05hmcc	....	.59mcc	52.00jmc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. a Red lead prices change frequently due to pig lead price changes. b U. S. War Dept. Spec. 3-49A. c ASTM Spec. D266–31. d 80% minimum ferric oxide. e 15 lb. f Per 432 sq. ft. g F.o.b. yard, Roxbury. h Per roll. 65 lb. i Net carload lot prices; Minneapolis and vicinity. j Asphalt pitch. k Per cwt. l Not used. m 1% discount for cash. n F.o.b. city. o Per 60-lb. p 6-drum. q Per 90-lb. roll. r F.o.b. factory Chicago. s 466 Med. t Federal tax included. u Per 90 lb. square. v Per ton. w Price to large paint contractors is $1.25 less. x Mineral surfaced. y 55-gallon container. z Drums. aa Approximate cost per 100 lbs. bb Roofers coating and cement: Price per ton. cc LCL, truck delivery. dd 2% cash discount. ee Asphalt: in 100 lb. package. ff 5-gal. drums. gg F.o.b. factory. hh Incl. freight: D. Std Black. E Ready-mixed, F. Over 80% ferric oxide. * Aver. wt: approx. 500 lbs

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.90	$2.35	$2.60	$2.25	$2.75	$2.75	$2.90	$1.20	$1.20
Baltimore	3.20d	2.58	3.125l	2.85/3.00	2.95tD	2.875	2.875t	1.565l	1.565l
Birmingham	3.00	2.24	2.50	2.16	2.52	2.75	2.65	1.225	1.325
Boston	3.06e	2.625	2.82	3.00	3.05	3.00d	2.90d	1.99e	1.99e
Chicago	3.25k	3.00m	3.05m	2.80	3.43p	3.212f	3.09e	2.20m	2.20m
Cincinnati	3.12	2.625	2.815	2/2.50/3.05	2.90	2.90	2.90	1.92	1.92
Cleveland	3.195r	3.075#	3.075	3.075	3.15t	3.15t	3.07C	2.325	2.325
Dallas	3.50	2.4875	2.625	2.625	3.437	2.75	2.7625	1.325	1.35
Denver	3.45	2.625	2.50	2.63	3.30	2.90	2.82	1.725	1.725
Detroit	3.18m	2.93m	3.18m	2.90	3.31/m	3.05	3.00e	2.18m	2.18m
Kansas City	3.50	2.55w	2.68w	2.515/2.76w	3.175w	2.80	2.90	1.88w	1.88w
Los Angeles	3.175	2.57	2.925h	2.45	3.437	3.00	2.90	1.94	1.94
Minneapolis	3.05	2.55	2.72	2.50	2.90	2.71n	2.70	1.82	1.82
New Orleans	2.95	2.32	2.70m	2.50	2.625	2.65	2.65	1.30	1.30
New York	3.85br	3.24bB	3.50B	3.50B	3.95A	3.795asF	3.445bp	2.05	2.05
Philadelphia	3.61i	2.90	3.32j	3.05/3.30	3.475k	3.45u	3.29g	1.75	2.05
Pittsburgh	3.40	3.00	2.875	3.00	3.15	3.35	3.00	1.90	1.90
St. Louis	3.55c	2.90h	2.90	2.95	3.175	3.09c	2.90y	1.97	1.97
San Francisco	3.40bkz	2.705	2.85	2.56	3.275e	3.175	3.35	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*†	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

* Cost of living bonus now included in basic wage. # Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

a 6 hr. day. b 7 hr. day. c Incl. 3% vac. stamp fund for bricklayers; 4% for electricians plus 7¼¢ WF. d Incl. 10¢ H&WF. e Incl. 6¢ H&WF. f Incl. 6% WF. g Incl. 11½¢ WF. h $2.45 homes & housing plus 5¢ VF. i Incl. 3½% WF and 15¢ PF. j Incl. 9¢/hr WF. k Incl. 7½¢/hr WF. l Incl. 4% VF. m Incl. 5¢/hr WF. n Incl. 6¢/hr WF. o Incl. 3% WF. p Incl. 3% WF, 3% PF. r Incl. 3% WF and 20¢ PF. s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. t Incl. 7½¢ H&WF. u Incl. 1½% WF. v Incl. 10¢ WF. w Negotiating. x Await. WSB appr. y Incl. 8% WF. z Incl. 7½¢ IF, 5¢ H&WF. A Incl. 10¢ WF, 10¢ PF & 10¢ VF. B Incl. 3% WF, 6 PH. C Incl. 7¢ IF. D Retro 1/1/53. E Plus 5% WF, plus travel pay per day. F Plus $1/per day travel time.

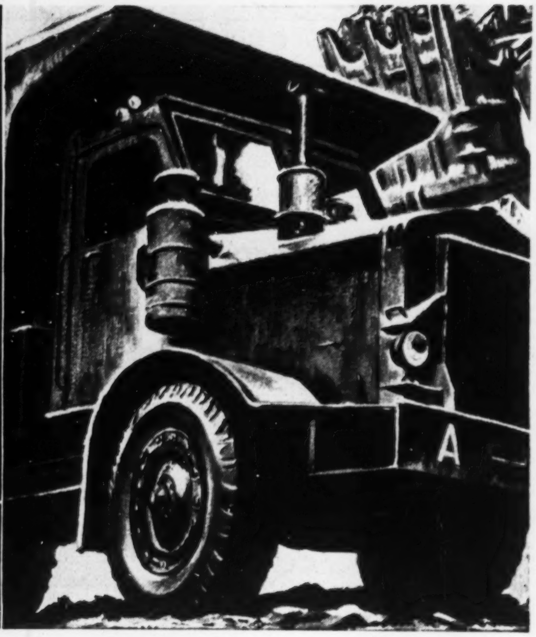
MEXICO CITY PRICES

In Pesos, F.o.b. City		Feb.'53	Mar.'53
Common Wages—Building (8 hr. day)	av. per hr.	1.06*	1.06*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	1.25*	1.25*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.88*	1.88*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1224.23	1224.23
Reinf. Steel. Corr. Rods			
[illegible]" x 11 meters	per ton	1386.77	1386.77
[illegible]" x 11 meters	per ton	1375.56	1375.56
[illegible]" x 11 meters	per ton	1364.35	1364.35
[illegible]" x 11 meters	per ton	1353.14	1353.14
[illegible]" x 11 meters	per ton	1353.14	1353.14
1" x 11 meters	per ton	1353.14	1353.14
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	50.00	55.00
Rose Gravel	per tr. load	46.00	52.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	750.00	750.00
1st Class Pine	per M ft.	1350.00	1350.00
2nd Class Pine	per M ft.	1200.00	1200.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.950 **ENR Common Average:** $1.824

You Can Extend Life of ENGINES, TRANSMISSIONS and DIFFERENTIALS



With Allison Torqmatic Drives

Based on user records, heavy-duty trucks equipped with Allison Torqmatic Converters and Transmissions *last longer and cost less to operate* than trucks with mechanical drives.

Records show that Allison Torqmatic Drives boost truck availability, enabling operators to improve their schedules and, thus, they can do more business.

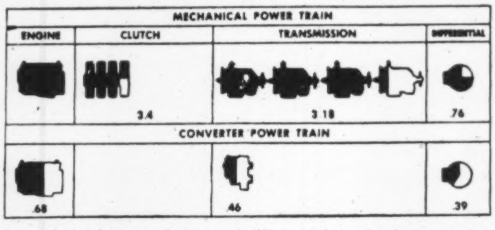
Trucks — and other heavy equipment — with Allison Torqmatic Drives use the flexibility of the converter to start heavy loads and make shock-free gear shifts at full power. The Allison Torqmatic Drives automatically balance engine power with the load requirement. This automatic operation makes the driver's job easier and reduces wear on the whole unit—thus cutting maintenance cost.

You are interested! Attach this advertisement to your letterhead and send it to Allison. You will receive detailed evidence on what these Allison Torqmatic Drives will do for you.

And the next time you're ordering heavy-duty equipment, you'll ask your dealer or manufacturer for units with Allison Torqmatic Drives.

ALLISON *Division of* GENERAL MOTORS
Box 894EE, Indianapolis 6, Indiana

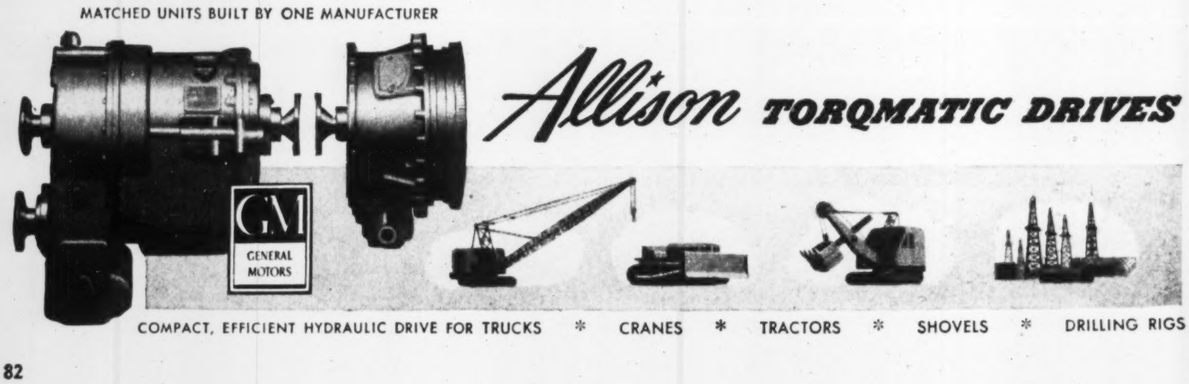
RATE OF COMPONENT OVERHAULS



ENGINE	CLUTCH	TRANSMISSION	DIFFERENTIAL
MECHANICAL POWER TRAIN			
	3.4	3.18	.76
CONVERTER POWER TRAIN			
.68		.46	.39

Rate of clutch, transmission and differential overhauls per engine overhaul for trucks equipped with mechanical drive and Allison TORQMATIC DRIVES. It shows that trucks with Allison TORQMATIC DRIVES have longer engine life, longer transmission life, and longer differential life.

MATCHED UNITS BUILT BY ONE MANUFACTURER



COMPACT, EFFICIENT HYDRAULIC DRIVE FOR TRUCKS * CRANES * TRACTORS * SHOVELS * DRILLING RIGS

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y
ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **NEW HAMPSHIRE**—B.A. 4/23—Bureau Pub. Roads, Dpt. Commerce, Concord Electric Bldg., 9 Capitol St., Concord,

Grafton Co.—2 concrete bridges, approaches, 18 mi. west of Conway on Swift River Forest Hy., 4,500 cu. yd. excav., 430 cu. yd. concrete, 80,000 lb. reinforcing steel, Proj. No. 8-E1.

BIDS ASKED—BUILDINGS

Mass., Burlington—SCHOOL—B.A. 5/1—Town, A. E. Wilde, chn. Bldg. Comn., Supt. Schools, Burlington, elementary school. $800,000. Plans deposit $60, refundable, Edgar T. P. Walker, 131 State St., Boston, archt., Theodore B. Hanna, 131 State St., Boston, assoc. archt.. CD 1/16.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **J. F. Fitzgerald Constr. Co.**, 212 Essex St., Boston, Mass. CA Est. **$2,500,000**. re-development of hydro-electric facilities, RUMFORD, ME. Rumford Falls Power Co., Philip Thomas, chn. engr., Rumford, Me. CD 3/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Garon Constr. Co., Inc., 341 Taylor St., Manchester, N. H., CA. **$500,000**, department STORE, Prospect and Elm Sts., MANCHESTER, N. H. Walnut Investment Co. Inc., Manchester, N. H. Sears Roebuck & Co., Boston, Mass., lessee. Bids July 18. CD 7/15.

▲ **Davison Constr. Co.**, 1306 A Elm St., Manchester, N. H. CA **$1,000,000**. mfg. PLANT and TEST BLDG., off Rte. 16, NEWINGTON, N. H. Simplex Wire & Cable Co., 79 Sidney St., Cambridge, Mass. Bids Mar. 9. CD 2/17.

▲ **City of Boston, Real Estate Comn.**, City Hall Annex, Boston, Mass. received no bids Mar. 27, Unit No. 4 leasing of public parking facility Milk, Pearl, Congress and Franklin Sts., BOSTON, MASS. Est. **$1,250,000.** CD 3/3.

† **Platt Constr. Co., Inc.**, 99 First St., Cambridge, Mass. LB, **$973,000**. POWER PLANT imprvs., Boxton Naval Shipyard, Bldg. No. 108, Spec. 31230, CHARLESTOWN, MASS. First Naval Dist., 495 Summer St., Boston, Mass. Bids Mar. 24. CD 3/16.

Ernest F. Carlson, Inc., 1694 Main St., Springfield, Mass. CA. Est. **$900,000**. SHOPPING CENTER, PITTSFIELD, MASS. Joseph A. Powers, 156 Benedict Rd., Pittsfield, Mass. Sears Roebuck & Co., Boston, Mass., lessee. CD 11/5/52.

▲ **John E. Pringle Co., Inc.**, 475 Fifth Ave., New York, N. Y., CA, **$5,000,000**, SHOPPING CENTER, Chickahominy Section off Post Road, BRYAM (Br. Port Chester, N. Y.) CONN. Home Owners Mutual Enterprises, Inc., c/o O'Hara-Hedlander & Edson, archts., 45 E. Putnam Ave., Greenwich, Conn. CD 3/18.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

N. Y., Brooklyn—HOUSING IMPRVS.—B.A. 4/16—New York City Housing Auth., 63 Park Row, New York, Zone 38, topsoil and planting; construction of street and yard imprvs. for Van Dyke Houses, Proj. No. NY 5-13, Sections I and II in area generally bounded by Stone and Livonia Aves., Powell St., Sutter, Blake and Dumont Aves. Plans deposit $25. CD 3/23/51.

† **Md., Fort George G. Meade**—BARRACKS—B.A. On Or About 4/30—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore, Zone 3, three and one half 1 story, 75x88 ft., U-shaped barracks, N. S. A. Constr. Proj., Eng.-18-020-53-61. Plans deposit $50. CD 5/16/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

Johnson, Drake & Piper, Inc., 86 Trinity Pl., New York, N. Y., LB **$2,436,474**, est. $2,505,000, construct four highway bridges, one railroad grade separation structure, two creek bridges on the Thruway Rte. between Erie County line and Slusser Rd., Genesee Co. CD 3/3, under Streets and Roads;

Herbert F. Darling, Williamsville, N. Y., LB **$677,928.** est. $774,000, substructure work 0.56 mi. on north approach to Fuhrmann Boulevard High Level Bridge, in Buffalo, Erie Co. Bids Mar. 26. CD 3/3.

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

M. Agammino Constr. Co., S. A. Healy Co., 61 Westchester Ave., White Plains, N. Y. and **Mt. Vernon Contg. Corp.**, 439 N. Terrace Ave., Mt. Vernon, N. Y., LB **$17,440,509**, est. $19,274,000, construct 16.4 mi., incl. building 9 highway and railroad grade separation structures, 3 bridges, requiring and estimated 1,800 tons structural steel, along the Thruway route between Sufferen in Rockland Co. and Harriman in Orange Co.;

A. S. Wikstrem, Inc., Box 217, Skaneateles, N. Y., LB **$2,156,257**, est. $2,652,000, grading paving, drainage facilities 2.26 mi. of Thruway, from point on south side of Mohawk River opposite Caroga Creek southeasterly to Ft. Plain, const. 1.96 mi. access roads, Montgomery Co.;

George J. Asthalter, Liberty, N. Y., LB **$303 673**, est. $331,000, reconstruct 4.65 mi. Breakabeen-Broome Center Rd., from approx. 1 mi. east of Breakabeen and proceeding southeasterly to point approx. 1 mi. north of Broome Center, Schoharie Co.;

John DiGiulio, 62 Dalaware Ave., Albany, N. Y., LB **$93,400**, est. $103,000, construct new 60-ft. undivided concrete higway from Edison Ave. soutward along Broadway for 0.2 mi. to connect with the Thruway Spur to be part of Schenectady's easterly connection with the Thruway, Schenectady Co.;

The Lane Constr. Corp., 37 Colony St., Meriden, Conn. LB **$5,690,325**, est. $7,150,000 constr. 17.59 mi. on Thruway Rte, between Slusser Rd., north of East Pembroke and Rte. 33 on east of Batavia, incl. traffic interchange with Rte. 98 to the north of Batavia, Genesee Co. Bids Mar. 26. CD 3/3.

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

Deline Constr. Co., Watertown, N. Y., LB **$420,585**, est. $422,000, 0.75 mi. W. Main St., city of Watertown, FA.C. 53-8, Jefferson Co.;

Fitzgerald Bros. Constr. Co. Inc., 92 Fourth St., Troy, N. Y., LB **$158,564**, est. $220,000. 1.86 mi. Miller Hill Rd., FASS. 53-2., Rensselaer Co.;

Munroe-Langstroth, Inc., 1390 Providence Hy., Norwood, Mass., LB **$907,361**, est. $955,000, 0.11 mi. New York State Thruway-Catskill Sect. Subd. 5 (Vloman Kill) C. T. 53-5, Albany Co. Bids Mar. 26. CD 3/3.

† **George E. Williams & Son**, 137 Louisa St., Utica 3, N. Y. CA. **$406,497**, misc. facilities, FY 1953, Schedules II, III, IV and V, Griffiss Air Force Base, ROME, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Feb. 12. CD 1/6.

† **Malan Constr. Corp.**, 25-09 42nd Rd., Long Island City, N. Y., CA. **$641,995**, expansion of steam distr. sys., Griffis Air Force Base, Eng. No. 30-075-53-272, ROME, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Feb. 19. CD 1/21.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

Linde-Griffith Constr. Co., 152 Passaic St., Newark, N. J., LB, **$1,120,172**, bridges for Garden State Parkway at Chevalier Ave. connection, Raritan River R.R., Main St., Washington Rd., Pennsylvania R. R. and State Route 4 (Contract No. 36), Middlesex Co. Bids Mar. 26. CD 3/5.

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Dpt. Office Bldg. 1035 Parkway Ave., Trenton,

Villa Contg. Co. Inc., 233 North Ave., Westfield, N. J., LB, **$1,725,575**, grading, drainage, paving Garden State Parkway, Contract No. 4, Section 7 from Route 66 to Pine Brook Rd., in Borough of New Shrewsbury, Monmouth Co. Bids Mar. 26. CD 3/5.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

E. D. Plummer & Sons, Chambersburg, Pa. LB. **$428,650**. grading, drainage, surf. 3.58 mi. State Rte. 135, Contr. G 260-2-615, Garrett Co. Bids Mar. 17. CD 3/6.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Parkview Estates Homes**, c/o George Dippel, archt., 124 Merrick Rd., Massapequa, N. Y. Owner Builds. **$2,500,000**. 150 HOUSES on tract on Merrick Rd. near Umpqua Rd., MASSAPEQUA, N. Y.

▲ **Greystone-in-Westchester Apartments**, c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$6,000,000**, Co-operative Garden APARTMENT of 42 two story bldgs. for 619 families on 47 acre site, North Broadway, YONKERS, N. Y.

▲ **Heath Arms, Inc.**, 2601 Sedgwick Ave., New York 64, N. Y. Owner Builds. **$1,000,000**, 6 story APARTMENT, east side of Kingsbridge Terrace, south of Kingsbridge Rd., NEW YORK, N. Y. Tito DiVincenzo, 2 Columbus Circle, New York, N. Y., archt. CD 7/17.

▲ **Consolidated Constructors**, 18 E. 41 St., New York 17, N. Y., LB **$1,087,381**, Junior-Senior HIGH SCHOOL, VERONA, N. Y. Bd. Educ., Central School Dist., Verona, N. Y. Bids Mar. 20. CD 3/6.

▲ **Domenico Rea**, 27 Woodlawn Ave., Pittsburgh, Pa., LB. **$1,146,800**, Unit No. 2, brick, block, steel, Senior HIGH SCHOOL, Moon Twp., CORAOPOLIS, PA. Moon Twp. Municipal Auth., R.D. 3, Coraopolis, Pa. CD 3/3.

Wilson Constr. Co., 305 Bedford St., Johnstown, Pa., LB **$482,000**, general contract ELEMENTARY and HIGH SCHOOL BLDG. for Victory Joint School Dist., Victory Twp., KENNERDELL, PA. State Public School Bldg. Auth., 25 and Market Sts., Harrisburg, Pa. Holmes Crosby, Oil City, Pa., arct. Bids Mar. 19. CD 11/24/50.

Clement Martin, Inc., 6230 Penn Ave., Pittsburgh, Pa., CA. Approx. **$571,050**, 6 bldgs., 64 families, Federal HOUSING Proj. Pa. 6-6, SHARPSBURG, PA. Allegheny Co. Housing Auth., County Bldg., Pittsburgh, Pa. Bids Dec. 2. CD 11/13.

Emory L. Miller & Son, 545 N. 2nd St., Shamokin, Pa., CA. **$520,000**, general constr. Junior-Senior HIGH SCHOOL, for the Shinglehouse Joint School Dist., SHINGLEHOUSE, Pa. State Public School Bd. Auth., 25 and Market Sts., Harrisburg, Pa. Bids Feb. 19. CD 2/25, under LB.

▲ **Riggs Terrace Corp.**, 1518 K St. N.W., Wash., D. C. Owner Builds. **$1,200,000**. 150 APARTMENT units, Bradley Blvd. and Chevy Chase Dr., BETHESDA, MD. Milton J. Prassas, 5915 Massachusetts Ave., Wash., D. C., archt.

T **Calvin Owens**, 2708 26 St. N.E., Wash., D. C. LB **$462,000**. PHYSICAL EDUCATIONAL FACILITIES at Montgomery Blair High School, Silver Spring, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids Mar. 24. CD 3/12.

Gelman Constr. Co., Investment Bldg., Wash., D. C., CA **$450,000**, one 8 story brick, concrete 90-unit APARTMENT, 1700 Harvard N.W., Wash., D. C. Harvard Properties, Inc., Investment Bldg., Wash., D. C. Awarded Mar. 24. CD 3/18.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Norfolk**—B.A. 4/14—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Zone 11, repairing south annex reservoir at U. S. Naval Base, NOY 77146, Spec. 37625. Plans deposit $10.

† **Fla., Tampa**—DENTAL CLINIC, etc.—B.A. On Or About 4/30—U. S. Eng., P.O. Box 4970, Jacksonville, dental clinic and squadron operations bldg., MacDill Air Force Base, Inv. No. ENG-08-23-53-51. CD 3/18, under LB.

BIDS ASKED—BUILDINGS

N. C., Kinston—POWER PLANT—B.A. 4/15—City, power plant addn., alterations. Plans deposit $20. Wm. C. Olsen & Assoc., 5 Exchange Pl., Raleigh, engrs. CD 12/15.

Tenn., Blountville—HIGH SCHOOL—B.A. 4/16—Sullivan Co. Bd. Educ., Blountville, high school addns.

PROJECTS COVERED

Projects--By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

COMMENT from the

BUTLER ENGINEER

—of Steel, Cement and "Saturation Points"

Here it is, right from the shoulder. *Never, never have we seen such activity shaping up in the construction field.* What phases? All phases! Highways, expressways, relocations, airfields . . . Atomic energy plants, off-shore concrete construction, dams, homes, buildings of all kinds . . . Concrete products plants—well, as I said,—everything!

The election results seem to have had the effect of lifting a sluice gate to release an immense flood of projects held back by the Dam of Uncertainty.

●

Will there be steel? Great Day, the supply is better now and getting better all the time. That's a fact—*not* wishful thinking. Every sign, every index, all statistics point—if not to an abundance—at least to a better than adequate flow to meet the ravenous demand.

●

Cement may be short for a time. I suggest as an answer a 1000 to 3000 barrel Butler Storage Bin to hold you through those anxious moments until the hopper bottoms roll in.

●

When I look at the number of Ready Mixed Plants (not to mention any other types) now in the engineering phase in my department, I get thinking back 20 years ago. I remember the many conferences, the gnawing anxiety all of us felt about the grave question, "Isn't the saturation point for Ready Mixed almost at hand?"

Maybe I should tell my 14 year old son to tell his grandsons that their first duty when they come into the world is to worry about the Ready Mixed saturation point.

Anyway, I'm in love with '53 already,

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

$375,000. Plans deposit $40. M. P. Robelot, 217 E. Sullivan St., Kingsport, archt. CD 12/9/48.

La., New Orleans—SCHOOL—B.A. 4/21—Orleans Parish School Bd., 703 Carondelet St., 1 and 2 story, rein.-con. frame Oak Park Elementary School, $500,000. Plans deposit $25, Wm. R. Burk, 632 Pirates Alley, New Orleans, archt. CD 1/21, under LB.

† **Ala., Mobile**—TRAINING CENTER REPAIRS, etc.—B.A. 4/22—Dpt. Navy, Officer in Charge Construction, Naval Base, S. C., repairs and painting buildings Naval Reserve Training Center, NOY 77329 (SF). Plans deposit $10.

Fla., Ft. Lauderdale—HOSPITAL—B.A. 4/22—Broward General Hospital, 1612 S.E. 1 Ave., hospital addn. $900,000. Plans deposit $50. Gamble, Pownall & Gilroy, 1407 E. Las Ola Blvd., Ft. Lauderdale, archts. CD 2/26.

† **Ga., Macon**—BUILDING—B.A. 4/23—Dpt. Navy, Officer in Charge of Construction, Naval Base, S. C. Building No. 3, Naval Ordnance Plant, NOY 75252. Plans deposit $10.

Ga., Gibson—SCHOOL—B.A. 4/28—Glascock Co., high school, $500,000. Plans deposit $50. Kuhlke & Wade, Campbell Bldg., Augusta, archts. CD 8/27.

N. C., Asheville—HIGH SCHOOL—B.A. 4/28—Buncombe Co. Bd. Educ., Court House, East Buncombe High School. $750,000. Lindsey M. Gudger, 52 Carter St., archt. CD 3/19/52.

† **Fla., Port Everglades**—LABORATORIES, etc.—B.A. 4/29—Dpt. Navy Officer in Charge of Construction, Naval Base, S. C., repairs and fencing of Bldg. 16, Naval Ordnance Testing Laboratories, NOY 77370. Plans deposit $10. CD 3/20.

Ga., Decatur—OFFICE ANNEX—B.A. 5/5—De Kalb Co. Court House, office bldg. annex. $350,000. CD 4/14.

N. C., Asheville—HIGH SCHOOL B.A. 5/5—Buncombe Co., Bd. Educ., Court House, North Buncombe High School. $800,000. Extended date. Brackett & Brackett, Technical Bldg., archt. CD 1/28.

N. C. Asheville—HIGH SCHOOL—B.A. 5/12—Buncombe Co. Bd. Educ., Court House, West Buncombe High School. $800,000. Anthony Lord, 1095 Hendersonville Rd., archt. CD 3/19/52.

▲ **Fla., Jacksonville**—HOSPITAL—B.A. 5/18—Jacksonville Baptist Memorial Hospital Assn. of Jacksonville, 1100 San Marce Blvd., Zone 1, Sect. 1, 5 story, rein.-con. hospital. $1,800,000. Total est. $2,750,000. Plans deposit $75. Extended date. Reynolds, Smith & Hill, 227 Park St., Zone 4, engrs. and archts. CD 3/27.

N. C. Asheville—HIGH SCHOOL—B.A. 5/19—Buncombe Co. Bd. Educ., Court House, Black Mountain-Swannanoa High School, Swannanoa. $750,000. Henry I. Gaines, 1095 Hendersonville Rd., archt. CD 3/19/52.

▲ **Ky., Louisville** POLICE HEADQUARTERS—B.A. 6/5—City, City Hall, police headquarters, $2,000,000. CD 11/10.

N. C., Asheville—HIGH SCHOOL—B.A. 7/14—Buncombe Co. Bd. Educ., Court House, Candler-Sand Hill High School. $500,000. Lindsey M. Gudger, 52 Carter St., archt. CD 3/19/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., 1340 Wilson St., Charleston, Zone 1,

Latrobe Constr. Co., Latrobe, Pa., LB, **$1,732,693** grading, paving 4.3 mi. hy. between Piney Creek and Little Whitestick Creek, Raleigh Co. CD 3/24, under LB.

Atlanta Gas Light Co., 224 Peachtree St., Atlanta, Ga. Owner Builds. **$174,000.** 65,000 ft. natural gas lines, ROME, GA.

Sumter Electric Co-operative, Sumterville. Owner Builds. **$350,000** rural distr. lines, Sumterville, FLORIDA, CD 6/14/46.

† **Clemens Constr. Co.**, Pier 2, West New York, N. J., CA, Est. **$567,018**, excavation of Section 2 of Canal 9, Central and Southern Florida Flood Control at Miami, Duval Co., FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Mar. 26. CD 2/3.

Edward M. Fleming Constr. Co., 4121 N.W. 25 St., Miami, Fla., CA. **$118,622**, Part 2, sewage treatment plant, MIAMI, FLA. Enid Corp., c/o Alex B. Knonoff, engr. 620 N.W. 32 St., Miami, Fla. Bids Mar. 19. CD 3/9.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,

W. W. Townsend, Tuscaloosa, Ala. and **A. E. Burgess**, 5529 1 Ave. S., Birmingham, Ala., CA. **$543,290**, Proposal A, 9.146 mi. grading, paving Tuscaloosa-Eutaw Rd., Proj. FI 150 (8), Tuscaloosa Co. CD 3/13, under LB.;

Moss-Thornton Co., P.O. Box 127, Leeds, Ala., CA. **$839,664**, c. conc. 2.949 mi. U.S. 31 between Homewood, FI 147 (4), Jefferson Co.;

McDowell & McDowell, P.O. Box 1144, Nashville, Tenn., CA. **$602,564**, grading, paving 4.608 mi. Florence-Athens Road, Proposal A, Proj. F-244 (2), Lauderdale Co. Grand total $1,985,518. Bids Feb. 27. CD 3/11, under LB.

Tallapoosa Electric Co-operative, Lafayette, Ala., Owner Builds, **$250,000**, electric lines, Lafayette, Chambers Co., ALABAMA.

▲ **McDonough Constr. Co. of Georgia**, 7 Baltimore Pl. N. W. Atlanta, Ga., LB, **$1,990,325**, natural gas system CULLMAN, ALA. Cullman—Jefferson Gas District City Hall, Cullman, Ala. Bids Mar. 23. CD 3/23.

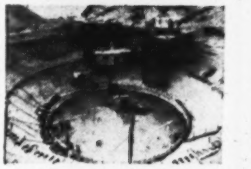
▲ **MISSISSIPPI**—State Hy. Dpt., T. C. Robbins, dir., Jackson,

W. R. Fairchild Constr. Co., Hattiesburg, Miss. CA **$1,060,307** est $1,175,000. grade, drain, culverts,

WET JOBS

Whether it's

HEAVY CONSTRUCTION



BUILDINGS

SEWERAGE

or any other type of wet work

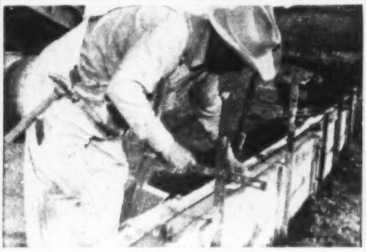
For "quick-dry" . . . specify . . .

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax



Contractors save money on curb form costs with Pacific Clamps

On all curb, curb and gutter, integral curb and similar jobs, Pacific all-steel Clamps—used in combination with wood forms—reduce nailing to a minimum, eliminate cost of wood stakes, and save on labor costs.

These simple, adjustable clamps require only one carpenter and one laborer to set up any job—without need for special tools. Wood forms last longer. No stakes driven through concrete.

One set of forms handles any job from 4" to 10" curb width, batter from vertical to any angle, and for any height up to 36".

Write for Bulletin C and prices

PACIFIC ENGINEERING SALES CO.
3938 Wilshire Blvd., Los Angeles 5, Calif.
Room 202

box bridge, bridges 7.675 mi. U. S. Hy. No. 51, between Byram and Jackson, Proj. FI 001-2 (2), Hinds Co.;

John H. Moon & Sons, Port Gibson, Miss. CA **$216,927,** est. $242,000. grade, drain, culvert, bridge (overpass) 0.567 mi. U. S. Hy. No. 51 between Byran and Jackson, Proj. FGI 001-2 (3), Hinds Co.;

Pigford Bros. Constr. Co., Hy. 11 S., Meridian, Miss. CA **$65,577,** est. $77,000. grade, drain, bridge, c. conc. paving 0.165 mi. U. S. Hy. No. 80 between Meehan Jct. and Chunky, Proj. FI 004-2 (2), Lauderdale Co.;

Dickerson & Bowen, Brookhaven, Miss. CA **$102,955,** est. $112,000. incidental grading, base preparation double bit. surf. tr. 9.561 mi. Miss. Hy. No. 14 between Kosciusko and Louisville, Proj. S 0645 (2) A, Attala Co.; CA **$186,873,** est. $215,000. base preparation double bit. surf. tr. 20.93 mi. Miss. Hy. No. 25 between 14S Jct. with U. S. Hy. 78 and Belmont, Proj. F 040-2 (6), Itawanba and Tishomingo Counties.

J. B. Michael & Co., Inc., 1021 Heywood St., Memphis, Tenn. CA **$86,051.** est. $105,000. base preparation, double bit. surf. tr. 9.47 mi. Miss. Hy. No. 30 between Oxford and New Albany, Proj. F 044-1 (8), Lafayette Co.;

Evans Contg. Co., Quitman, Miss. CA **$201,588,** est. $220,000. grade, drain, culverts, bridge 11.16 8 mi. Miss. Hy. No. 18 between Pachuta and Quitman, Proj. S 0349 (2) A and S 0363 (1) A, Clarke Co.;

Linwood Smith, Lake Village, Ark. CA **$82,341,** est. $86,000. base and double bit. surf. tr. 8.73 mi. Miss. Hy. No. 347 between Dekalb and Linville, Proj. S 0536 (2) A, Kemper Co.;

Memphis Stone & Gravel Co., Exchange Bldg., Memphjs, Tenn. CA **$68,509,** est. $75,000. base preparation double bit. surf. tr. 12.471 mi. Miss. Hy. No. 69 between Columbus and Miss.-Ala. State Line Proj. S 0751 (3) A, Lowndes Co. Grand total **$2,071,127.** Bids Mar. 24. CD 3/12.

▲† **R. P. Farnsworth & Co., Inc.,** 1515 S. Salcedo St., New Orleans, La. LB **$1,096,000.** eleven 2 story, 37x224 ft., airmen's dormitories, incl. grading, gravel walks, drives, Selman Air Force Base, Spec. 36785, MONROE, LA. Officer in Charge of Constr., Eighth Naval Dist., U. S. Naval Station, 600 South St., New Orleans, La. Bids Mar. 26. CD 3/9.

Reserve Telephone Co., Reserve, La. **Owner Builds. $250,000.** telephone lines, RESERVE, LA.

† **Jas. McHugh Constr. Co.,** 6449 S. Park Ave., Chicago 37, Ill. LB **$596,008,** est. $486,306. 4 brick and 1 granite superstructure, pumping plants with substations, pumping equipment, appurtenances, Covington, Kenton Co. KENTUCKY, U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids Mar. 26. CD 2/20.

Mountain Rural Telephone Co., Ezel, Ky. **Owner Builds. $200,000.** telephone lines, EZEL, KY.

Patterson & Holmes Constr. Co., 2707 7th Ave. S., Birmingham, Ala., CA, **$989,358,** natural gas sys., DYER, TENN. **Gibson Co. Utilities Dist., Dyer, Tenn.** CD 3/24, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. M. Turner & Co.,** 137 Campbell Ave., Roanoke, Va. CA. **$1,010,000,** Pulaski County HIGH SCHOOL, PULASKI, VA. Pulaski Co. School Bd., Pulaski, Va. Bids Jan. 29. CD 2/6, under LB.

▲ **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., CA. Approx. **$1,500,000.** HOSPITAL, WISE, VA. United Mine Workers Welfare Fund, 907 15 St. N.W., Wash., D. C. CD 7/29.

▲ **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C. CA, **$1,500,000.** HOSPITAL, BECKLEY, W. VA. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C.

▲ **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., CA, **$1,500,000,** HOSPITAL, MAN., W. VA. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C.

▲ **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., CA, **$1,500,000.** HOSPITAL, WILLIAMSON, W. VA. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C.

J. T. Simmons, Jay Ave., Greensboro, **N. C.** Owner Builds. **$800,000.** 84 RESIDENCES, GREENSBORO, N. C.

▲ **Tidewater Constr. Co.,** 538 Front St., Norfolk, Va., CA $3,000,000. PLANT addn., CHARLESTON, S. C. West Virginia Pulp & Paper Co., North Charleston, S. C. CD 3/6.

Laxton Constr. Co., Inc., 127 Brevard Ct., Charlotte, N. C. **LB $524,400,** HIGH SCHOOL, CHESTER, S. C. Chester Co. Bd. Educ., Chester, S. C. Bids Mar. 19. CD 3/6.

F. W. Berman, Jr., 1760 E. 32 St., Savannah, Ga., Owner Builds, **$300,000,** 50 RESIDENCES, SAVANNAH, GA.

▲ **K. R. Bashaw,** 2136 Phoenix Ave., Jacksonville, Fla., Owner Builds, **$1,500,000,** 250 RESIDENCES, JACKSONVILLE, FLA.

▲ **Cowart Bros.,** 217 W. Church St., Jacksonville, Fla., Owner Builds, **$12,000,000, 2,200** RESIDENCES, JACKSONVILLE, FLA.

East Coast Constr. Co., 1514 Gary St., Jacksonville 7, Fla., CA, **$755,300,** Paxon Field HIGH SCHOOL, JACKSONVILLE, FLA. Bd. P. Instruction, 605 Ocean St., Jacksonville, Zone 2, Fla. Bids Mar. 18. Awarded Mar. 25. CD 3/24, under LB.

Rood Constr. Corp., 4221 Ponce De Leon Blvd., Coral Gables, Fla., CA, **$350,000,** APARTMENT UNITS, MIAMI, FLA. Lincoln 62nd Street Corp., c/o contractor.

Edward M. Fleming Constr. Co., 4211 N. W. 25 St., Miami, Fla., LB, **$733,834,** HIGH SCHOOL Addn.,

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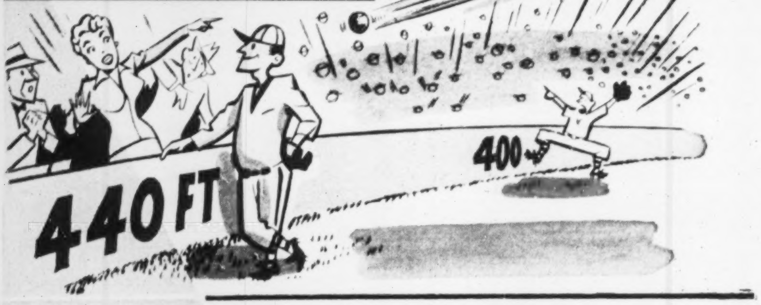

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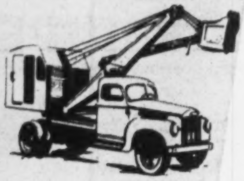

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TITUSVILLE, FLA. Brevard Co. Bd. P. Instruction, Titusville, Fla. Bids Mar. 24. CD 3/12.

J. F. Holley, 905 6 Ave. N., Birmingham, Ala., CA, **$527,000** vehicle GARAGE, BIRMINGHAM, ALA. City, City Hall, Birmingham, Ala. Bids Mar. 24. CD 3/30, under LB.

Raymond Srygley, 540 19 Ave. S., Birmingham, Ala., Owner Builds, **$400,000,** APARTMENT, BIRMINGHAM, ALA.

J. F. Holley, 905 6 Ave. N., Birmingham, Ala., LB, **$527,000** vehicle GARAGE, BIRMINGHAM, ALA. City, City Hall, Birmingham, Ala. Bids Mar. 24. CD 3/9.

Wiloughby Realty Co., c/o Earl O. Murray, archt. Clarke Bldg., Birmingham, Ala., Owner Builds, **$325,000** 30 RESIDENCES, BIRMINGHAM, ALA.

Abbott Constr. Co., c/o Pembleton & Mims, archts., Title Guarantee Bldg., Birmingham, Ala., Owner Builds, **$600,000,** 57 RESIDENCES, BIRMINGHAM, ALA.

▲ **Eng., South Atlantic Div.,** Old. P.O. Bldg., Atlanta, Ga., rejected bids Mar. 10, 175 Wherry Act HOUSING UNITS, FORT MC CLELLAN, ALA. LB, **$1,850,000.** CD 3/13, under LB.

Bear Bros., 25 E. Jefferson St., Montgomery, Ala., CA, **$315,000,** Taliaferro Street SCHOOL, MONTGOMERY, ALA. Montgomery Co. Bd. Educ., Court House, Montgomery, Ala. Bids Mar. 10. CD 3/2.

M. T. Reed Co., P.O. Box 1066, Jackson, Miss. CA **$925,700.** East and West Gulfport Junior High SCHOOLS, GULFPORT, MISS. Gulfport Municipal Separate School Dist., Gulfport, Miss. CD 3/24, under LB.

Southern Builders, Inc., P.O. Box 1815, Shreveport, La. CA **$599,462.** HIGH SCHOOL, MINDEN, LA Webster Parish School Bd., Minden, La. CD 3/23, under LB.

▲ **Martin S. Rothchild,** 4303 Thalia St., New Orleans, La. Owner Builds. **$1,800,000.** 300 RESIDENCES, St. Claude Heights, subdivision, NEW ORLEANS, LA.

▲ **J. A. Jones Constr. Co.,** 209 W. Fourth St., Charlotte N. C. CA. Est. **$1,500,000.** HOSPITAL, HARLAN, KY. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C. CD 7/31/52.

▲ **J. A. Jones Constr. Co.** 209 W. Fourth St., Charlotte, N. C. CA Est. **$1,500,000.** HOSPITAL, HAZARD, KY. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C. CD 7/31/52.

▲ **J. A. Jones Constr. Co.,** 209 W. Fourth St., Charlotte, N. C. CA Est. **$1,500,000.** HOSPITAL, MC DOWELL, KY. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C.

▲ **J. A. Jones Constr. Co.,** 209 W. Fourth St., Charlotte, N. C. CA Est. **$1,500,000.** HOSPITAL, MIDDLESBORO, KY. United Mine Workers Welfare & Retirement Fund, 907 15 St. N.W., Wash., D. C. CD 7/31.

▲ **J. A. Jones Constr. Co.,** 209 W. Fourth St., Charlotte, N. C. CA Est. **$1,500,000.** HOSPITAL, PIKEVILLE, KY. United Mine Workers Welfare & Retirement Fund, 907 15St. N.W., Wash., D. C.

▲ **J. A. Jones Constr. Co.,** 209 W. Fourth St., Charlotte, N. C. CA Est. **$1,500,000.** HOSPITAL, WHITESBURG, KY. United Mine Workers Welfare & Retirement Fund, 907 15St. N.W., Wash., D. C. CD 7/31.

L. & M. Constr. Co., 843 Vance Ave., Memphis, Tenn. CA. **$500,000.** BANK addn., MEMPHIS, TENN. First National Bank, 127 Madison Ave., Memphis, Tenn.

R. P. Farnsworth & Co., 1515 S. Salcedo St., New Orleans, La., CA. **$974,600,** Phase 2, GAS SERVICE CENTER, MEMPHIS TENN. Memphis, Light, Water & Gas Co., 179 Madison St., Memphis, Tenn. Bids Mar. 12. CD 3/23, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ind., Elkhart**—B.A. 4/21—Bd. P. Wks., H. J. Weaver, pres., City Hall, sewerage system, Contract IIa, 11,860 lin. ft. 8- to 54-in. vitr. tile and rein.-con. interceptor sewers; Contract IIB, 6,000 6- to 36-in. rein.-con. and vitr. tile interceptor sewers, $1,000,000. Consoer, Townsend & Assocs., 351 E. Ohio St., Chicago, Ill., consult. engrs. CD 12/6/44.

BIDS ASKED—BUILDINGS

Ind., Muncie—SCHOOL—B.A. 5/15—School, City of Muncie, Longfellow School. $525,000. Plans deposit $25. Hamilton-Graham, Muncie, archts. CD 12/18.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

INDIANA—State Hy. Comn., Albert J. Wedeking, chn. State House Annex, Indianapolis, Zone 4.

E. L. Schutt, 120 E. Market St., Indianapolis, 4, Ind., CA, **$620,486,** est. $792,554, 8 span 402 ft. continuous steel beam and rein.-con. girder bridge over Wildcat Creek, N. E. of Lafayette Tippecanoe Co. Bids Dec. 23, awarded Mar. 24. CD 1/2, under LB.

▲ **Wisconsin Electric Power Co.,** 231 W. Michigan St. Milwaukee, 3, Wis. Owner Builds. **$2,200,000.** power line from Milwaukee to Watertown, WISCONSIN.

E. J. Neumann Co., 2903 N. 74 St., Milwaukee, 10, Wis., CA, **$103,541,** paving W. Fiebrant Ave., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Mar. 20, awarded Mar. 24.

BUILDINGS

LOW BIDS AND CONTRACTS

Carmichael Constr. Co., 148 E. Miller St., Akron, O. CA. **$993,000,** general constr., GYMNASIUM and natatorium, Brown and Carroll Sts., AKRON, O. University

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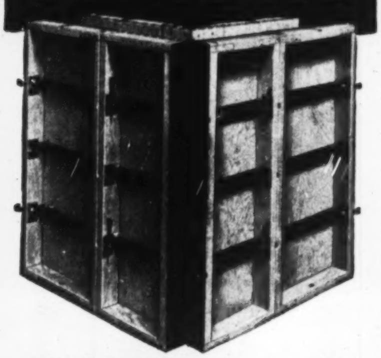

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of Akron, 302 Buchtel St., Akron, O. Bids Mar. 25, awarded Mar. 27. CD 3/11.

▲ **United Constr. Co.**, 5551 Centre St., Pittsburgh, Pa., LB, **$2,942,000**, 304-family development, Kimmel Brook HOMES, YOUNGSTOWN, O. Youngstown Metropolitan Housing Auth., 976 W. Federal St., Youngstown, O. Bids Mar. 25. CD 3/11.

Repp & Mundt, Columbus, Ind., CA, **$250,000**, 1 story, 200x240 ft., and 2 story, 60x240 ft., brick, structural steel, concrete FACTORY addn., COLUMBUS, IND. Hamilton Mfg. Co., Columbus, Ind. Awarded Mar. 21. CD 9/7/51.

▲ **Huber, Hunt & Nichols**, Speedway, Indianapolis, Ind., CA, Approx. **$1,500,000**, 1 story, 290x383 ft., brick; concrete, structural steel WAREHOUSE and OFFICE, COLUMBUS, IND. Public Service Co. of Indiana (Southern Div.) P. A. McLeod, mgr., 15 Brown St., Columbus, Ind. Bids Mar. 17, awarded Mar. 20. CD 3/6.

▲ **Foster Eng. Co.**, 4741 E. Washington St., Indianapolis, 1, Ind., CA, **$6,900,000**, SHOPPING CENTER, incl. 14 buildings, 50 stores, rooms and auditorium, 1, 2 and 8 story, stone, brick, rein.-con., structural steel E. Washington St. and Shadeland Ave., INDIANAPOLIS, IND. Albert Frankel, Indiana Trust Bldg., Indianapolis, 4, Ind. C. Wilbur Foster & Assocs., 4741 E. Washington St., Indianapolis, 1, Ind., engrs. and archts.

Hunzinger Constr. Co., 4577 N. 124 St., Milwaukee 13, Wis., CA, **$300,000**, 1 story, bsmnt., 104x133 ft. STORE, Parking area, etc. SHOREWOOD, WIS. Kohl's Food Stores, 4050 N. 34 St., Milwaukee, 16, Wis. CD 2/10.

Standard Constr. Co., 250 Builders Bldg., Minneapolis, Minn., LB, **$944,000**, general contract COURTHOUSE, WAUSAU, WIS. Marathon Co., Court House, Wausau, Wis. Bids Mar. 24. CD 3/4.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. CA **$1,677,700**. four 1 story, PSYCHO-GERIATRIC BLDGS. Northville State Hospital, NORTHVILLE, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. CD 3/17, under LB.

▲ **Thompson-Schmidt Co.**, 18425 James Couzens Dr., Detroit, Mich. CA **$1,282,700**. general contract brick, steel, concrete HIGH SCHOOL incl. auditorium, gymnasium, double swimming pool, rifle range, clinic, etc., REDFORD, MICH. Redford Twp., John Turner, secy.; Redford School Bd., 21431 Grand River St., Redford, Mich. CD 1/15.

Alstrom Constr. Co., 22 W. Western Ave., Muskegon, Mich. CA, **$377,900**. general contract 1 story, brick, steel elementary SCHOOL, South District, SOUTH HAVEN, MICH. City, C. E. Dilley, secy., Bd. Educ., South Haven, Mich. Bids Mar. 17. CD 2/20.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Nebraska and Iowa**—B.A. 4/21—U. S. Eng., 1709 Jackson St., Omaha, Nev., rehabilitation of relief wells downstream at Missouri River from Omaha Neb. and Council Bluffs, Ia., Inv. 25-066-53-220. CD 5/1/44.

† **Ia., Sioux City**—DISPENSARY—B.A. 4/24—U. S. Eng., 1709 Jackson St., Omaha, Neb., conversion of Building 542 to dispensary at Sioux City Air Force Base, Inv. 25-066-53-161. CD 2/2.

† **Neb., Lincoln**—TELEPHONE EXCHANGE—B.A. 4/28—U. S. Eng., 1709 Jackson St., Omaha, telephone exchange and communication bldg., Lincoln Air Force Base, Inv. 25-066-53-139. CD 3/25, under LB.

† **North Dakota**—SWITCHYARD APPROACHES—B.A. 4/30—Bureau Reclamation, Dpt. Interior, Bismarck, Garrison switchyard approaches, Transmission Div., Missouri-Souris Dist., Missouri River Basin Proj., Mercer and McLean Counties, Spec. No. DC-3922; adv. ENR 4/9.

BIDS ASKED—BUILDINGS

Ia., Corydon—HOSPITAL—B.A. 4/15—Wayne Co., Corydon hospital, $300,000. T. W. Williamson & V. H. Loebsack, 1245 Topeka St., Topeka, Kan., archts. CD 12/2.

▲ **Kan., Wichita**—OFFICE—B.A. 4/15—Kansas Gas & Electric Co., 201 N. Market St., office, $2,000,000, Thomas & Harris, 321 W. 2 St., archts. CD 11/24/50.

Tex., Fort Worth—MUSEUM—B.A. 4/16—City, c/o W. O. Jones, mgr., City Hall, 2 story brick, tile, concrete, steel art museum, Montgomery St. $500,000. Plans deposit $50. A. George King & Assoc., 819 Penn St., archts. CD 5/17/46.

† **N. M., Los Alamos** — FABRICATION FACILITY — B.A. 5/19—U. S. Atomic Energy Comn., Los Alamos Field Office, c/o Ch. Procurement Sec., Los Alamos, fabrication facility, TA-3, Proj. "S", steel frame weighing 600 tons, fdn. and partial bsmnt. of poured concrete, exten. wall of prefab insulated steel or aluminum panels, Inv. No. 291-53-8. $300,000-$500,000. CD 5/8/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Natkin & Co.**, 4001 Leavenworth St., Omaha, Neb. LB, $895,000 POL bulk storage facilities, Sioux City Municipal Airport, Inv. 25-066-53-140, SIOUX CITY, IA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Mar. 25. CD 2/26.

Barksdale & LeBlanc, 6425 Greenwall Springs Rd., Baton Rouge, La. LB **$165,666**. fencing, sentry towers, sentry house, fence lighting, Inv. 23-028-(Neg 53-1), CAMP CROWDER, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 19. CD 12/30, under Public Buildings.

Cecil Cannady, Monett, Mo. CA **$105,500**, sewage plant, sewers, CRANE, MO. City, Crane, Mo. B. L. Oliver & Co., 1805 Grand St., Kansas City, Mo., engrs.

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C. L. French, 104 S. Rock Hill Rd., Webster Groves 19, Mo. LB **$192,942**, est. $228,300. imprv., wid'n. Jamieson Ave. between Pernod Ave. and Arsenal St., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., St. Louis 3, Mo. Bids Mar. 24. CD 2/24.

▲ **L & R Constr. Co.**, 6609 Latta Place, St. Louis 21, Mo. LB **$2,375,300**, est. $2,300,000, general contract;

McNamara Co., 621 Olive St. Rd., University City 5, Mo. LB **$483,274**, est. $500,000, heating and air-conditioning contracts;

Mack Electric Co., 4581 Gravois Ave., St. Louis 16, Mo. LB **$354,285**. est. $275,000. electrical contract for brick, steel, concrete terminal administration bldg., Lambert-St. Louis Municipal Airport, Lambert Field, St. Louis County, ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 and Market Sts., St. Louis 3, Mo. Bids Mar. 24. CD 2/24.

M. K. Eby Constr. Co., Inc., 610 N. Main St., Wichita, Kan. CA **$260,427**. water treatment plant, AUGUSTA, KAN. City, Augusta, Kan. Bids Mar. 16. CD 2/20.

Sherwood Constr. Co., Independence, Kan. CA **$148,358**. street imprvs., INDEPENDENCE, KAN. City, Independence, Kan.

Walters Sand Co., Manhattan, Kan. CA **$176,628**. street imprvs., MANHATTAN, KAN. City, Manhattan, Kan. D. C. Wesche, city engr.

▲ **Associated Pipe Line Contractors, Inc.**, 3272 Westheimer St., Houston, Tex., CA. **$2,370,000**. 75 mi. 24 in. pipe line from Hallettsville, Lavaca Co. to Waller Co.;

Williams Bros. Co., Natl. Bank of Tulsa Bldg., Tulsa, Okla., CA. **$236,000**, pipe line crossings of the Neches and Angelina Rivers, near Diboll; CA. **$2,100,000**, 71.4 mi. 24 in. pipe line carriers from near Livington, Polk Co. to Shelby Co.;

Anderson Bros. Corp., 707 N. Drennan St., Houston, Tex., CA. **$2,525,000**, 82 mi. 24 in. pipe line from near Waller to Polk Co.;

Pentzien, Inc., 300 Omaha Loan & Building Assn. Bldg., Omaha, Neb., CA. river crossings for the Trinity, Brazos, Colorado and Sabine Rivers, TEXAS. Grand total $7,231,000. Texas Eastern Transmission Corp., Texas Eastern Bldg., Shreveport, La.

Central Texas Television Co., 412 Avenue M, Lubbock, Tex., Purchase and Hire. **$195,000**, television station, LUBBOCK, TEX. CD 3/2.

Sisco Electric Co., Box 238, Amarillo, Tex., CA. **$301,000**, two 2,500 KVA sub-stations, modification of 3 SUB-STATIONS, 6.4 mi. 22 KV rural distr. lines, 3.4 mi. 69 KV rural distr. lines, 38 mi. tie lines and some line conversion, LUBBOCK, TEX. South Texas Plains Electric Co-operative, Lubbock, Tex. Cecil M. Hawk & Assoc., 1641 Broadway, Lubbock, Tex., engrs.

Central Texas Television Co., Waco, Tex. Own Forces. **$210,000**, television station, WACO, TEX. CD 11/18.

† **Domenic Leone Constr. Co.**, 818 Oak St., Trinidad, Colo. CA. **$308,953**. Santa Ana Pueblo Protection Works and public use facilities, Jemez Canyon Dam and Reservoir, Serial No. CIVENG 29-005-53-4, NEW MEXICO. U. S. Eng., Box 1538, Albuquerque, N. M. CD 3/5. under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Lovering Constr. Co., Guardian Bldg., St. Paul, Minn. LB **$776,200**. POWER PLANT addn., VIRGINIA, MINN. City, Water & Light Comn., F. T. Borg, secy., Virginia, Minn. Bids Mar. 25. CD 2/27.

▲ **O. D. Milligan Constr. Co.**, Manhattan, Kan. LB. **$1,087,730**. general contract STUDENT UNION BLDG. Kansas State College, MANHATTAN, KAN. State Bd. Regents, Topeka, Kan. Bids Mar. 17. CD 3/4.

Dasta Constr. Co., 715 Charlotte St., Kansas City, Mo. CA Est. **$500,000**. SHOPPING CENTER, MISSION, KAN. Mission Development Co., 5300 Johnson Dr., Mission, Kan. Roger Frangkiser, 5420 Johnson Dr., Mission, Kan., archt. G. W. Tewksbury, 5420 Johnson Dr., Mission, Kan., assoc. archt.

Olathe Truck & Tractor Co., Olathe, Kan. Owner Builds. **$125,000**. WAREHOUSE and SHOP, OLATHE, KAN.

D. C. Bass & Sons, Bass Bldg., Enid, Okla., LB **$799,882**, est. $700,000. 60-bed municipal HOSPITAL and equip, BLACKWELL, OKLA. City, Blackwell, Okla. Bids Mar. 17. CD 3/4.

▲ **Jimmy K. Jones**, McBirney Bldg., Tulsa, Okla. Owner Builds. **$2,000,000**. 200 HOMES, 8-unit SHOPPING CENTER, TULSA, OKLA.

▲ **E. I. duPont de Nemours & Co.**, Orange, Tex., Own Forces. **$3,925,000**, organic chemical PLANT, BEAUMONT, TEX. CD 2/19.

Manhattan Constr. Corp., 2828 Pease Ave., Houston, Tex. CA **$435,435**, 9 story, bsmnt. auto mechanical parking GARAGE, Walker and Caroline Sts., HOUSTON, TEX. Medical Arts Building Corp., 1215 Walker St., Medical Arts Bldg., Houston, Tex. Bids Feb. 17. CD 2/4.

▲ **Linbeck Constr. Co.**, Box 18094, Houston, Tex., LB **$618,290**, LIBRARY and ADMIN. BLDG.; LB **$391,100**, DORMITORY LB **$317,108**, SANCTUARY; LB **$312,220**, REFECTORY-DINING HALL-LAUNDRY; LB **$371,115**, CLASSROOMS BLDG.; LB **$305,000**, LABORATORY and SCIENCE BLDG., HOUSTON, TEX. St. Mary's Seminary, 1018 Preston Ave., Houston, Tex. Bids Mar. 18. CD 3/16.

Smith & Cooper, Inc., Box 202, Odessa, Tex., CA. **$522,000**, MERCANTILE, ODESSA, TEX. Mrs. Cora Alice Lee Odessa, Tex. George L. Dahl, 2101 N. St. Paul St., Dallas, Tex., archt.

▲ **Churchill & Barry**, Life of America Bldg., Dallas, Tex., CA **$8,500,000**, aluminum FABRICATING PLANT, ROCKWALL, TEX. Texas Aluminum Corp., c/o Dick Pickens, Rockwall, Tex. CD 12/15.

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Roy E. Thompson Constr. Co., 3008 First Ave. S., Billings, Mont. CA **$739,737.** general contract men's RESIDENCE HALL, Montana State College, BOZEMAN, MONT. State Bd. Educ., Helena, Mont. Bids Mar. 23. CD 2/25.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Calif., North Sacramento—B.A. 4/20—City, 128 E. Bassettlaw Ave., sewage disposal plant. Plans deposit $20. Harry N. Jenks, 63 Crescent Dr., Palo Alto, engr. CD 11/15/51.

† **Nev., Owyhee**—B.A. 4/29—Bureau Indian Affairs, Dpt. Interior, Interior Bldg., 19th and C Sts. N. W. Wash. 25, D. C., interceptor sewer line, manholes, sewer connections, lift station, sewage plant at Owyhee Indian Agency.

BIDS ASKED—BUILDINGS

▲ **Wash., Pasco**—DEPARTMENT STORE—Bids Asked—Sears, Roebuck & Co., 2650 E. Olympic Blvd., Los Angeles, Calif., 58,000 sq. ft. department store. $2,000,000. W. Wagner, 1830 Van Ness Ave., Fresno, Calif., archts. CD 9/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Fisher Contg. Co.,** 2201 S. 19 Ave., Phoenix, Ariz., CA. **$782,109,** c. conc. parking apron, appurtenances Luke Air Force Base, Eng-04-353-53-100, PHOENIX, ARIZ. U. S. Eng., 715 S. Figueroa St., Los Angeles, Calif. Bids Feb. 25, awarded Mar. 20. CD 3/3, under LB.

▲ **WASHINGTON**—State Hy. Comn., Olympia,
MacRae Bros., 2733 4 Ave. S., Seattle, Wash., CA, **$3,364,025,** double-leaf bascule span over Chehalis River in Aberdeen, with steel girder approaches Fed. Aid Proj. FAP 006-1 (3), Grays Harbor Co. Bids Mar. 24. CD 2/25.

† **John H. Sellen Constr. Co.,** 228 9 Ave. N., Seattle, Wash. LB, **$320,313,** maintenance shop, McChord Air Force Base, Inv. 5389, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 24. CD 3/17.

▲† **McNutt Bros. & C. J. Montag,** 7805 N.E. Halsey St., Portland, Ore., LB. **$4,945,530,** Dexter Dam and Powerhouse, Lookout Point Proj., Lane Co. CIVENG-35-026-53-120, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Mar. 25. CD 3/9.

Morrison-Knudsen Co., Inc., 411 W. 5 St., Los Angeles, Calif., CA. **$987,997,** relocate approx. 24.7 mi. railroad track, EDWARDS, CALIF. Atchison, Topeka & Santa Fe Ry., L. H. Powell, ch. engr. (Coast Lines), 121 E. 6 St., Los Angeles, Calif. CD 3/23, under LB.

† **Scott-Buttner Electric Co., Inc.,** 896 W. Grand Ave. Oakland, Calif., LB, **$328,681** modification, extension electrical distr. sys., Spec. 1774, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif.

BUILDINGS

LOW BIDS AND CONTRACTS

Roy T. Earley Co., 321 Middle Waterway, Tacoma, Wash., CA, **$396,000,** chemical PLANT addn., TACOMA, WASH. Hooker Electrochemical Corp., 605 Alexander Ave., Tacoma, Wash.

William S. Nored, Box 449, Corvallis, Ore., LB **$192,895** WAREHOUSE, CORVALLIS, ORE., Benton-Lincoon Electric Co-operative, Corvallis, Ore. Cleo H. Jenkins, Corvallis, Ore., archt. CD 5/14, under Unclassified.

Swinerton & Walberg, 1723 Webster St., Oakland, Calif., LB. **$509,000,** general contract CHEMICAL LABORATORY Bldg. 70, Radiation Laboratory, BERKELEY, CALIF. University of California, Administration Bldg., Berkeley, Calif. Bids Mar. 20. CD 3/3.

Stein Constr. Co., 1542 Venice Blvd., Los Angeles, Calif., LB, **$139,800,** SHOP Bldg. No. 3 addn., El Camino Junior College, GARDENA, CALIF. El Camino Junior College District 16007 S. Crenshaw Garden, Gardena, Calif. Bids Feb. 20. CD 2/11.

▲ **Williams & Burrows, Inc.,** 18 W. Orange Ave., South San Francisco, Calif., CA, **$2,009,470,** ADMINISTRATION BLDG., SHOP, GYMNASIUM, Capuchino High School Unit No. 4, SAN BRUNO, CALIF. San Mateo High School Dist. Bellevue Ave., San Mateo, Calif. CD 3/5, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **B. C., Vancouver**—HOUSING—B.A. 4/28—Central Mortgage & Housing 360 Homer St., low-rental subsidized housing, inc. 224 units, Little Mountain Area, $2,000,000. Plans deposit $100. Bids July 26/51 rejected. J. L. Adams, 360 Homer St., engr. CD 8/16/51, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

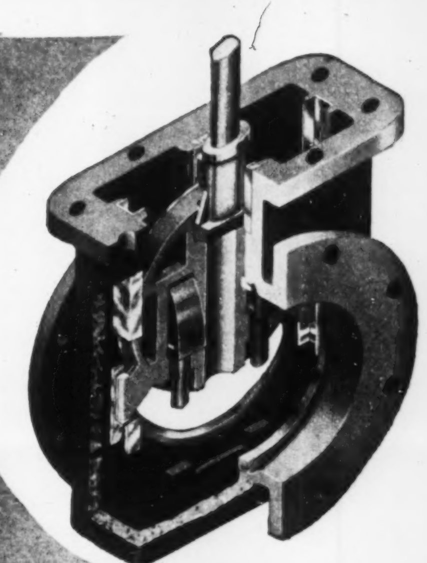
Maple Leaf Constr. Co. Ltd., P.O. Box 124, Notre dame de Grace, Montreal, Que. CA, **$130,000,** 1,200 ft. concrete sewer 6 ft. wide, VALLEYFIELD, QUE. City, Valleyfield, Que. A. Lafontaine, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Wm. A. Rich Constr. Ltd., 660 Eglinton Ave. E., Toronto, Ont., CA, **$350,000,** 66x271 ft., 37x85 ft., 70x70 ft. wings, brick, steel HIGH SCHOOL, MARKHAM,

MH



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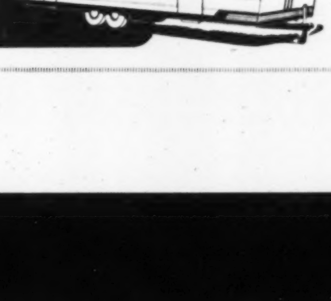

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ONT. Markham District High School Bd., Markham, Ont. Bids Mar. 12, awarded Mar. 23. CD 2/25.

Carter Constr. Co. Ltd., 419 Cherry St., Toronto, Ont., CA, **$400,000**, partly 1 and 2 story, 20,000 sq. ft., steel, brick, stone WAREHOUSE, GARAGE and OFFICES, Leslie and Keating Sts., TORONTO, ONT. Brewers Warehousing Co. Ltd., 19 Richmond St. W., Toronto, Ont. N. A. Armstrong, 19 Melinda St., Toronto, Ont., archt. Awarded Mar. 24.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—WAREHOUSES—B.A. 4/6—U. S. Eng., Anchorage, two 200x200x21 ft., and 200x800x21 ft., rein.-con. fdn. and floor slab laminated wood frame, coated corrugated metal siding warehouses, 20x420 ft. rein.-con. ramp; approx. 1,500 ft. railroad spur; outside utilities, Elmendorf Air Force Base, Inv. No. ENG-95-507-53-51. CD 11/26/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **ALASKA**—Alaska Road Comn., Juneau,

S. Birch & Son and Lytle & Green, Central Bldg., Seattle 4, Wash., CA **$2,196,719**, grading, surf. bit. surf. 49.84 mi. Alaska Hy. Sect. C1. Bids Mar. 3. CD 3/9, under LB.

Proposed Projects

WATER SUPPLY

Calif., Oxnard—City, 225 W. 3 St., Oxnard, water reservoir and pumping plant system, **$86,000**; 21 in. pipe line water conduit, **$311,528**. CD 9/13/49.

O., Waverly—City, WW expansion and new mains. **$785,000**. CD 10/1.

Okla., Pauls Valley—City, bond election Apr. 14, reservoir water supply. **$650,000**. Lee M. Bush & Co., Colcord Bldg., Oklahoma City, consult. engrs. CD 12/3.

SEWERS, WASTE DISPOSAL

▲ **Mich., Grosse Pointe**—City of Grosse Pointe Disposal Auth., Everett B. Lane, garbage and refuse disposal incinerator to serve Harper Woods, Grosse Pointe and municipalities. **$1,000,000**.

O., Urbana—City, sewage disposal plant, **$450,000**. Alden E. Stilson & Assocs., 209 S. High St., Columbus, engrs.

O., Waverly—City, sewage disposal plant and sewer extens. to new housing and shopping center site. **$800,000**. CD 10/1.

† **Va., Little Creek**—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, sewage collection sys. and lift station, Naval Amphibious Base, NOY 78217. **$635,000**. Knappen-Tippetts-Abbett Eng. Co., 62 W. 47 St., New York, N. Y., consult. engr. CD 8/18/52, under Public Buildings.

BRIDGES

ALABAMA—State Hy. Dpt., Montgomery,

Montgomery Co.—bridge over Alabama River on U.S. Hy. 31. **$500,000**.

▲ **DELAWARE**—State Hy. Dpt., Dover,

Kent Co.—movable bridge and approaches 0.5 mi. Lebanon Bridge and approaches, **$175,000**.

5 ft. wid'n., 11 ft. concrete addn., resurf. causeway 8 mi. Route 6 (Smyrna to Woodland Beach), **$450,000**.

b. conc. on concrete and arch bridge 0.48 mi. Court St. and Bridge-Dover, **$700,000**.

New Castle Co.—rein.-con. 0.75 mi. White Clay Creek Bridge and approaches, **$75,000**.

4 lane bridge, railroad underpass and approaches Walnut St. Bridge and approaches 0.9 mi., **$5,500,000**.

concrete bridge, b. conc. approaches 0.55 mi. Harvey Rd. Bridge and approaches, **$250,000**.

rein.-con. Red Clay Creek Bridge (Marshallton), **$300,000**.

underpass reconstruction 1 mi. U.S. 13-Naamans Pa. R.R. Underpass, **$800,000**.

Sussex Co.—alternate bid, Georgetown By-Pass, **$150,000**. Richard A. Heber, ch. engr.

STREETS AND ROADS

▲ **DELAWARE**—State Hy. Dpt., Dover,

Kent Co.—c. conc. wid'n., b. conc. resurf. 2 mi. Commerce St.-Smyrna (U.S. 13 to Clayton), **$210,000**.

c. conc. wid'n., b. conc. resurf. 6 mi. Route 8 (Pearsons Cor. to Dover), **$550,000**.

dual 2.5 mi. U.S. 113 (Dover to Airbase),

c. conc. wid'n., b. conc. resurf. 7.5 mi. Route 14 (Harrington to Milford), **$680,000**.

b. conc. resurf. 7.5 mi. U.S. 113A (Dover to Little Heaven), **$450,000**.

c. conc. wid'n., b. conc. resurf. 9 mi. Route 14 (Harrington to Burrsville), **$770,000**.

c. conc. wid'n., b. conc. resurf. 10 mi. U.S. 13, (Dover to N. C. Co. Line), **$900,000**.

c. conc. wid'n., b. conc. resurf. 6 mi. Route 12 (Felton to Frederica), **$510,000**.

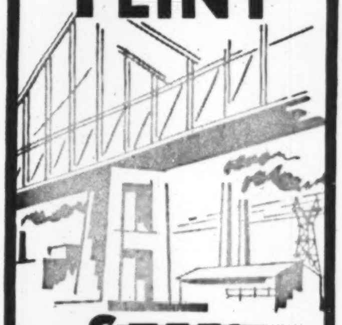
c. conc. wid'n., b. conc. resurf. 2 mi. Route 6 (Blackiston to Md. Line), **$180,000**.

c. conc. wid'n., b. conc. resurf. Route 12 (Felton to Whitleysburg), **$770,000**.

blacktop and bridges 3.75 mi. Road 84 (Twin Willows to White Hall X Rd.), **$150,000**.

c. conc. addnl. 11 ft. lane 3.25 mi. Rd. 55 (Sandtown to Rd. 251), **$220,000**.

FLINT



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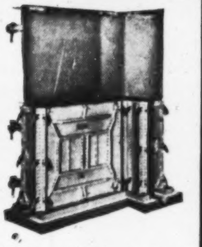

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blacktop and bridge 2.5 mi. Rd. 304 (Vernon to Andrewsville), $175,000.
c. conc. addnl. 11 ft. lane 4 mi. Route 9 (Devils Hill to Little Creek), $180,000.
relocation of roadway and railroad gates 0.2 mi. Viola R.R. Crossing, $15,000.
b. conc. on macad. 0.3 mi. Smyrna School Streets, $50,000.
c. conc. 1 mi. Harrington Curbs and Drainage $30,000.
c. conc. or b. conc. 15 mi. U.S. 13 (Canterberry to Kent Line), $2,500,000.
New Castle Co.—c. conc. 0.25 mi. Washington St. (11 to 14 Sts. Wilmington), $200,000.
c. conc. wid'n, b. conc. surf. 3.5 mi. New Castle Ave. (Fingerboard Rd. to N. C.), $700,000.
c. conc. wid'n., b. conc. 4.8 mi. Route 273, Christian to Newark, $400,000.
c. conc., b. conc. 2.5 mi. Phila. Pike (Bellevue Rd. to Claymont), $700,000.
c. conc. wid'n., b. conc. 2.8 mi. Gap Road (Rd. 48 to Cedars), $125,000.
c. conc. 0.4 mi. Heald St. (N.C. Ave. to 3 St. Br.), $175,000.
b. conc. 6 mi. Kennett Pk. (Greenhill Ave. to Pa. Line), $420,000.
c. conc. wid'n., b. conc. 3.5 mi. U.S. 13-Basin Cor. to Rodgers Cor., $500,000.
c. conc. wid'n., b. conc. resurf. 2.5 mi. Rt. 41 Basin Rd. (U.S. 13 to Newport), $350,000.
c. conc. wid'n and b. conc. resurf. 1 mi. Walnut St. (Front to 16 St.) Wilmington, $150,000.
b. conc. resurf. 5 mi. Gov. Printz Blvd. (Edgemoor Rt. to Phila. Pk.), $700,000.
conc. dual, addn. 24 ft. lane c. conc. 5.2 mi. Route 2 (Limestone Rd. to Newark), $1,000,000.
c. conc. connecting with Md. Expressway 0.5 mi. State Route 4, $90,000.
conc. wid'n., b. conc. resurf. 9.5 mi. U.S. 13 (Fieldsboro to St. Georges), $780,000.
b. conc. resurf. 1.1 mi. Route 2 (Prices Corn. to Elsmere), $225,000.
c. conc. wid'n., b. conc. resurf. 7.5 mi. U.S. 13 (St. Georges to State Rd.), $600,000.
b. conc. resurf. 0.8 mi. Gov. Printz (11 to 30 St.), $100,000.
c. conc. wid'n., b. conc. resurf. 6 mi. U.S. 13 (Smyrna to Pt. Breeze), $500,000.
b. conc. on macad. 1 mi. Edgemoor Road, $200,000.
b. conc. on macad. 2.2 mi. Veale Road (Faulk Rd. to Marsh Rd.) , $160,000.
c. conc. wid'n. b. conc. resurf. 1.8 mi. Curtis Mill Rd. (Newark to Milford X Road), $300,000.
b. conc. on macad. 1.9 mi. Center Rd. (Prices Cor. to Lancaster Pike), $500,000.
b. conc. on macad. 0.7 mi. Bellevue Rd. (Phil. Pk. to Gov. Printz), $100,000.
b. conc. on macad. 2 mi. Morrow Rd.-Newark, $160,000.
c. conc. 2.8 mi. Lancaster Pike (paving), $300,000.
c. conc. 4 lanes 1.5 mi. Newport Pike (Boxwood to Silview), $800,000.
c. conc. dual 1.6 mi. Concord Pike (Murphy Rd. to Talleyville), $700,000.
b. conc. with c. conc. 0.4 mi. Union St. (Viaduct to Sycamore St.), $40,000.
c. conc. 0.56 mi. Broom St. (Front to 7 St.), $225,000.
c. conc. wid'n., 0.6 mi. Gov. Printz (30 St. to Mdse. Mart), $80,000.
b. conc. on macad. 0.7 mi. Veale Rd. (Concord to Faulk), $225,000.
b. conc. on macad. 1.4 mi. Veale Rd. (Marsh to Harvey).
b. conc. on macad. 2.3 mi. Darley Rd. (Naamans Rd. to Phila. Pk.), $210,000.
b. conc. on macad. 0.725 mi. Delaware Ave.-Newark, $150,000.
b. conc. on macad. 1 mi. Silverside Rd. (Talleyville to Faulk), $100,000.
b. conc. 0.5 mi. River Rd. (Duncan to Prospect), $70,000.
b. conc. on macad. 1.13 mi. Holloway Terrace (Lambson Lane), $175,000.
c. conc., b. conc. on macad. 1.1 mi. Liberty Ave. (Minquadale), $130,000.
c. conc. 0.15 mi. Redding School Sidewalks, $5,000.
c. conc. 0.4 mi. A. I. Du Pont School Sidewalk, $7,000.
Sussex Co.—c. conc. wid'n., b. conc. resurf 14 mi. Route 14 Milford to Five Points, $1,250,000.
wid'n., b. conc. on macad. 4 mi. Route 14 Indian River to Bethany, $250,000.
c. conc. wid'n., b. conc. resurf. 11.5 mi. Route 18 Georgetown to Lewes, $980,000.
c. conc. wid'n., b. conc. resurf. 7 mi. Route 25, Laurel to Sharptown, $600,000.
c. conc. wid'n., b. conc. resurf. 6.25 mi. Route 404 Bridgeville to Maryland Line, $525,000.
c. conc. wid'n., b. conc. resurf. 9.75 mi. Route 404-18 (U.S. 13 to Georgetown), $825,000.
c. conc. wid'n., b. conc. resurf. 2 mi. Route 297 (Marmons School to Oak Orchard), $150,000.
blacktop 3 mi. Road 494 (Horsey Church to Rd. 493), $80,000.
blacktop and bridge 2.25 mi. Road 381 (Road 38 to Road 58), $80,000.
c. conc. or b. conc. alternate bid 5.5 mi. Five Points to Shockleys Corner, $1,000,000.
c. conc. b. conc. 2.1 mi. U.S. 13 (1 mi. S. of Greenwood to Kent-Sussex line), $340,000.
blacktop-Delaware-Maryland Joint Proj. 4.4 mi. Line Road East of Delmar, $100,000.
blacktop 0.8 mi. Oak Lane-Laurel, $80,000.
blacktop 0.25 mi. Swains Dam-Relocation, $25,000. R. A. Haber, ch. engr.

GEORGIA—State Hy. Dpt., Atlanta,
Hall Co.—widening U.S. 23 from Buford to Flowery Branch, $550,000.

▲ **Mo., St. Joseph**—Bd. P. Wks., City Hall, $1,260,000 bond election Apr. 14, street imprvs.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave. Trenton,
Mercer Co.—constr. east-west throughway from Calhoun St. westward to Route 29 at city line, Trenton, $3,-

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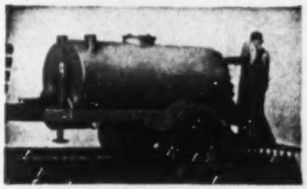
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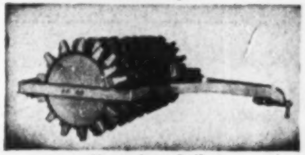
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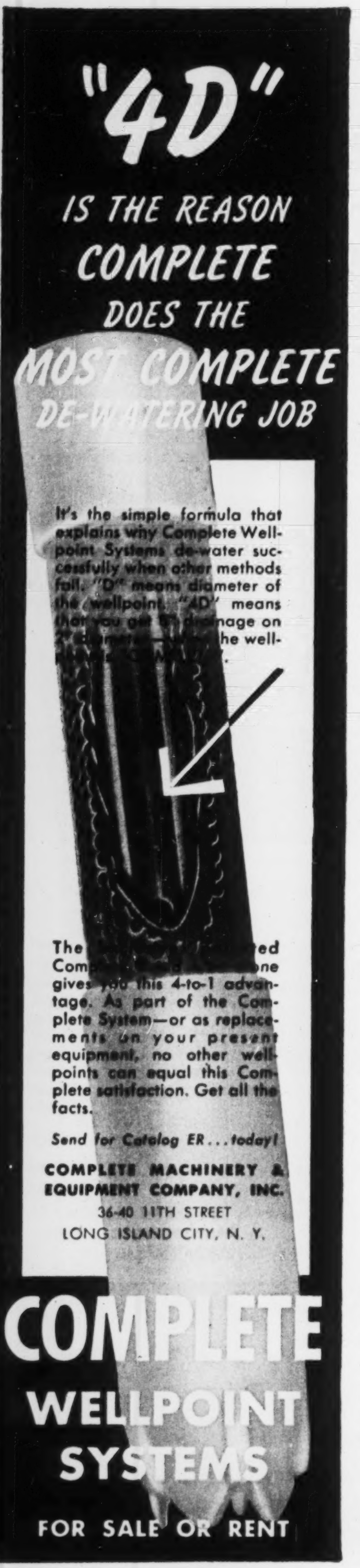

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500,000. Edward W. Kilpatrick, state hy. engr. CD 1/22/47.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

Buncombe Co.—6-lane boulevard by-pass linking Beaucatcher Tunnel and Smoky Park highway bridge. $3,000,000.

SOUTH CAROLINA—State Hy Dpt., Columbia,

Spartanburg Co.—wid'n U. S. Route 176 to four lanes in city of Spartanburg, $500,000.

▲ **WASHINGTON**—State Hy. Comn., Olympia,

Skagit Co.—wid'n., partially relocate Hy. 1 from 10 mi. from Conway Junction to Chuckanut Branch with bridges over Skagit River and Gages Slough, grade separations and railroad crossing, $7,000,000;

Thurston Co.—freeway through Olympia, $5,500,000 W. A. Bugge, state hy. engr.

EARTHWORK, WATERWAYS

▲ **Oregon**—Portland General Electric Co., 621 S.W. Alder St., Portland, plans by Waldemar Seton, 621 S. W. Alder St., 2 reservoirs on Clackamas River. Clackamas Co. $4,800,000.

Va., Virginia Beach—City, City Hall, bond election Mar. 31, continuation of beach erosion imprvs. $600,000. Myron A. Sturgeon Engineers, 2124 Kimball Terrace, Norfolk, consult. engrs. CD 1/29.

AIRPORTS

▲† **Mich., Alpena**—AIRPORT IMPRVS.—U. S. Eng., 1900 Cadillac Tower, Detroit, replacing Grayling Airport, incl. exten. 2 runways to 7,000 ft. to handle jets, sixty-two 20x100 ft. prefabricated barracks, mess hall, out bldgs., revamping sanitary and storage facilities, $1,000,000.

LATIN AMERICA

▲ **Cuba, Havana**—HOTEL—Culinary Workers Union of Cuba, c/o Dr. Marion Lazo, Officius, 110 Havana, plans by Welton Becket & Assoc., 5657 Wilshire St., Los Angeles, Calif., 550-750-room hotel, 22 to 24 stories, to be operated by Hilton Hotels International. $10,000,000.

▲ **Guatemala, Guatemala City**—New World Hardwood Corp., 79 Wall St., New York, N. Y., U. S. A. plans development of forest reserves, $5,000,000; construct standard guage railway line from Carribbean Coast of Guatemala, near British Honduras border to Peten area, $750,000.

PUBLIC BUILDINGS

▲ **Calif., Los Angeles**—OSTEOPATHIC—Los Angeles Co., Hall of Records, Los Angeles, plans by Adrian Wilson & Paul R. Williams, 816 W. 5 St., 10 story, rein.-conc. osteopathic bldg., Los Angeles County General Hospital $8,700,000.

▲ **Calif., Monrovia — Duarte** — SCHOOLS — Monrovia — Duarte High School District, $3,000,000 bond election May 15, schools. CD 12/18/51.

▲ **Colo., Ft. Collins**—DORMITORY—Colorado A & M College, Ft. Collins, plans by James M. Hunter, consult. engr. and archt., 2049 Broadway, Boulder, 400-men 2 story, brick men's dormitory. $1,400,000. CD 12/17.

▲ **Colo., Ft. Collins**—COURT HOUSE—Bd. Comrs., Larimer Co., County Courthouse Bldg., 3 story court house. $1,000,000.

▲ **Conn., Danbury**—SCHOOL—Town Bd. Educ., Arnold McLachlin, chn., plans by William Webb Sunderland, 81 West St., elementary school, off Hayestown Ave. $1,100,000.

▲ **Conn., Greenwich**—SCHOOL—Town, Bd. Educ., Havemeyer Bldg., Riverside Junior High School. $1,250,000.

▲ **Conn., Middletown**—SCHOOL—Town, Howard B. Mathews, chn. Bldg. Comn., Huntington Hill Ave., plans by Guy F. Lamb, 252 Main St., Middletown, wing addns. Woodrow Wilson High School. $1,200,000.

▲ **Del., Wilmington**—SCHOOLS—Mt. Pleasant Special School Dist., Duncan Rd., River Road Elementary School, $675,000; Edgemoor Elementary School, $662,000; Carrcroft Elementary School, $958,000; Silverside Road Elementary School, $560,000.

▲ **Ga., Atlanta**—OFFICE—State, State Capitol, plans by A. Thomas Bradbury, 60 5 St. N.E., office bldg. $12,000,000. CD 7/26/51.

Ga., Gainesville—SCHOOL IMPRVS.—Hall Co. Bd. Educ., Gainesville, bond election May 6, school imprvs. $975,000. CD 6/25.

Ill., Palatine—SCHOOL—School District 15, 101 N. Oak St., plans by Chas. W. Nicol, 23 E. Jackson St., Chicago, Zone 4, 1 story grade school. $700,000. CD 3/10/47.

▲ **Ind., Indianapolis**—OFFICE—Bd. Parks Comr., 101 E. 27 St., office and garage, $1,250,000. William H. Hunt, city engr.

Ind., Richmond—SCHOOL—City, City Hall, plans by McGuire & Shook, Fletcher Trust Bldg., Indianapolis, Vaile School. $500,000. CD 1/16.

▲ **La., Baton Rouge**—SCHOOLS—East Baton Rouge Parish School Bd., Court House, $12,500,000 bond election Apr. 21, school imprvs.

▲ **Maryland**—CRIMINAL INSANE INSTITUTION—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, plans by Henry Powell Hopkins, 10 E. Mulberry St.,

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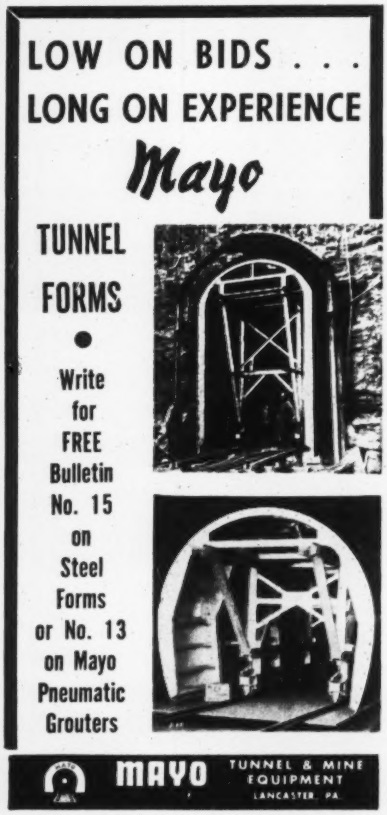

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Baltimore, State Criminal Insane Institution. **$2,000,000.** Site not selected. Nathan L. Smith, c/o owner, ch. engr.

▲ **Mass., Chicopee**—HOUSING—Chicopee Housing Auth., Del Peloquin, chn., Chicomansett St., plans by Edmund I. Leeds & Assoc., Inc., 153 Brighton Ave., Allston, 150 housing units. **$1,500,000.**

▲ **Mass., Greenfield**—SCHOOLS—Town, School Dpt., F. W. Porter, supt., 125 Federal St., Senior High School adjacent to Shattuck Park, **$2,500,000;** elementary school, Bernardstown Rd., **$500,000.**

Mass., Pittsfield—RAMP GARAGE—City, Traffic Comn., Donald C. Butler, councilman, City Hall, 3 story, bsmnt., ramp garage, First St. **$500,000.**

Mich., Berkley—CITY HALL, etc.—City, 3322 Coolidge St., city hall and civic center, incl. bldgs. to house municipal offices, recreation and community facilities, Coolidge and Catalpa Sts. **$900,000.** David S. Geer, 950 N. Hunter St., Birmingham, planning consultant.

▲† **Mich., Detroit**—ARSENAL—U. S. Eng., 1900 Cadillac Tower, Detroit Arsenal Research Center development of military vehicles of all types, incl. bldg. and test tracks, Van Dyke and Eleven Mile Rds., Center Line, **$2,075,000.**

Mich., Ferndale—SCHOOL—City, 21204 Woodward St., **$850,000** bond election Apr. 27, school, Ferndale School Dist.

▲ **Mich., St. Joseph**—SCHOOL—City, Bd. Educ., plans by Maurer & Maurer, 312 Lafayette Bldg., South Bend, Ind., brick, steel, concrete high school, **$1,500,000.**

Minn., Delavan—SCHOOL—Bd. Educ., A. B. Whitehead, clk., voted **$545,000** bonds Mar. 16, school, H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt.

Minn., Lindstrom—SCHOOL—Bd. Educ., R. A. Horton, clk., Independent School Dist. No. 4, plans by Haarstick, Lundgren & Assoc., W. 1385 First National Bank Bldg., St. Paul, Lindstrom-Center City School addn. **$600,000.**

▲ **Miss., Hattiesburg**—SCHOOL—City, City Hall, **$1,750,000** bond election May 22, school imprvs. CD 3/9.

Neb., Crete—SCHOOL—Bd. Educ., Crete, plans by Clark & Enersen, 1323 Sharp Bldg., Lincoln, Senior High School. **$500,000.**

▲ **N. Y., Buffalo**—HOUSING—Buffalo Housing Auth., City Hall, plans by Milton Milstein, Prudential Bldg., Housing Prop. NYS 60-C, 372 units on Kensington-Fillmore site, **$5,500,000;** Housing Proj. NYS-60-A, 768 units on Jefferson Ave. site, **$11,000,000;** James W. Kideney & Assoc., Prudential Bldg., consult. engrs.; Housing Proj. NYS-60-B, 560 units on Pine St. site, **$8,000,000.** Backus, Crane & Love, 232 Delaware Ave., consult. engrs.

▲ **N. Y., Idlewild**—AVIATION BLDG., etc.—The Port of New York Auth., 111 8th Ave., New York, Zone 11, 1 story bldg. for mfg., research and development of test equipment for aviation use to be occupied by Greer Hydraulics, Inc., **$1,300,000;** 175x850 ft. hangar on 43 acre site, incl. taxiway and access road for use by United Air Lines, **$3,000,000.** CD 4/27/44.

▲ **N. Y., Salamanca**—HOUSING—Salamanca Housing Auth., Salamanca, garden type apartment for 100 families, 11.75 acres, Front St. **$1,500,000.**

▲ **O., Cleveland**—SCHOOL—Bd. Educ., 1380 E. 6 St., Zone 14, plans by Arthur F. Baer, Bd. Educ., 1380 E. 6 St., trade school on 5-acre site, W. 49 St. and Detroit Ave. **$2,000,000.** CD 11/14/50.

▲ **O., Cleveland**—MUSEUM—Cleveland Museum of Art 1150 East Blvd., plans by Hays & Ruth, Public Square Bldg., 3 story, museum addn. **$4,000,000.**

▲ **O., Mansfield**—SCHOOLS—Bd. Educ., W. L. Miller, supt. Schools, bond election May 5, four grade schools, Junior High School, warehouse, Senior High School addn., 4 present grade school addns. **$4,400,000.** CD 5/11/50.

▲ **Pa., North Wales**—SCHOOL—Upper Gwynedd School Dist., West Point, plans by Karcher & Smith, 1520 Locust St., Phila., elementary school. **$1,000,000.** CD 7/28/49.

▲ **R. I., Providence**—PARKING GARAGE—City, City Hall, plans by Lucio E. J. Carlone, 57 Eddy St., parking garage, Pine and Page Sts. **$1,527,000.** Thomas Worcester, Inc., 85 State St., Boston, Mass., consult. engr. CD 11/10/52.

▲ **Tex., Galena Park**—SCHOOLS—Galena Park Independent School Dist., E. L. Johnson, Bd. Pres., Galena Park, voted bonds Mar. 21, elementary school near Home Owned Estates, east of Greens Bayou, **$300,000;** Negro High School in Fidelity Subdivision, **$600,000;** Junior High School to serve sect. of Home Owned Estates and Cloverlief, **$750,000;** Pyburn Elementary School in Woodlawn Acres, **$300,000;** new Pyburn Elementary School, **$375,000;** elementary school in Woodlawn Acres, **$550,000;** Galena Park Elementary School addn., **$725,000;** school admin. bldg., **$375,000;** classrooms and physical educ. bldg., **$400,000;** new physical educational bldg., only in Galena Park area, **$350,000.**

▲ **Tex., Victoria**—HOSPITAL—Victoria Co., Court House, voted bonds Mar. 14, county hospital, **$2,000,000.** CD 3/2.

Utah, Layton—HIGH SCHOOL—Davis School Dist., Farmington plans by Paul S. Hodgson, 829 Eccles Bldg., Ogden, Layton Junior High School. **$600,000.**

Utah, Logan—SCIENCE—State Bldg. Bd. State Capitol, Salt Lake City, plans by Carl Schaub, Logan, 3 story science bldg., Utah State Agricultural College. **$800,000.**

Wash., Pullman—SCHOOL—School District 307, Pullman, plans by Funk, Molander & Johnson, W. 524 4 St., Spokane, grade school addns. **$650,000.** CD 9/20/50.

▲ **Ont., Brantford**—HOSPITAL—Brantford General Hospital, Brantford, taxpayers passed by law on Mar. 16 approving expenditure, hospital extensions and renova-

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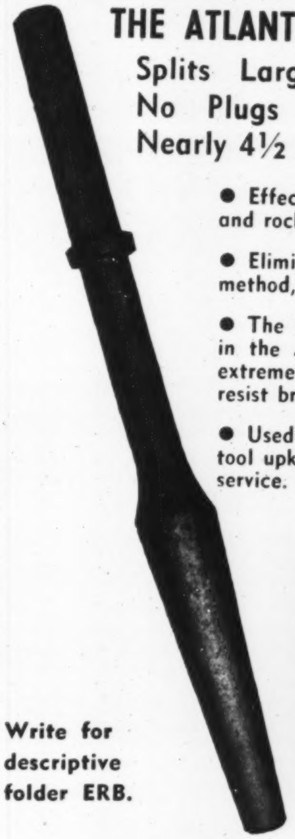

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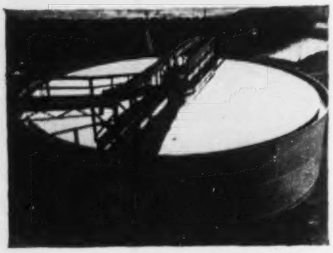

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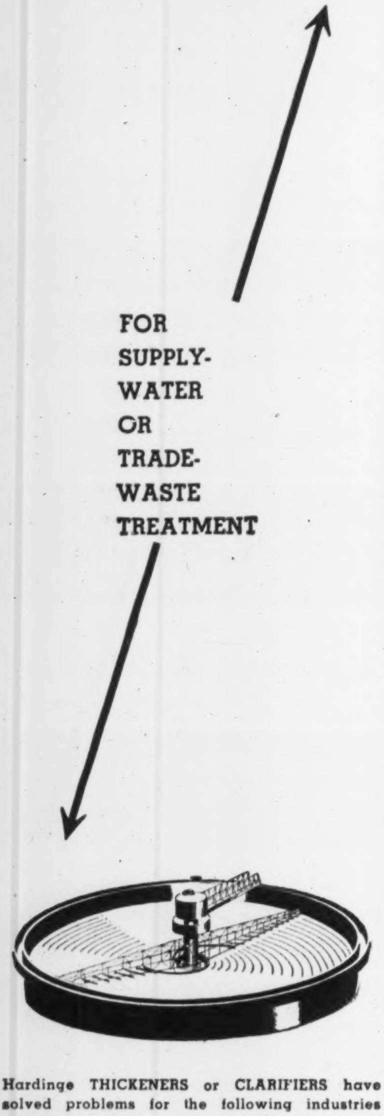

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COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—MEDICAL OFFICE—E. W. Shahid, 628 Green Springs Ave. S., medical office. **$1,100,000.**

Ala., Phenix City—HOSPITAL—Cobb Memorial Hospital, c/o Chas. H. McCauley, archt. Jackson Bldg., Birmingham, negro hospital, **$750,000.**

Calif., West Covina—DWELLINGS—Volk McLain Co., 612 S. Flower St., Los Angeles, plans by E. H. Fickett, 5657 Wilshire Blvd., Los Angeles, 106 frame dwellings, Cypress and Coney Aves. **$742,000.**

▲ **Colo., Denver**—RETAIL STORE—Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Ill., plans by T. H. Buell & Co., consult. engrs. and archts., 730 14 St., multi-story, brick, steel store **$4,000,000.** CD 1/12.

▲ **Colo., Denver**—OFFICE—Sherman Investment Co. Patterson Bldg., plans by James S. Sudler, consult. engr. and archt. 302 Colorado Bldg., 3 story 50,000 sq. ft., brick, steel office, parking area in bsmnt., 1845 Sherman St. **$1,000,000.** Shell Oil Co., Denham Bldg., lessee.

Colo., Denver—STORE, etc.—Charles C. Wilmore, P. O. Box 235, plans by Norton Polivnick, archt. and consult. eng., 1225 Bannock St., store, motel and restaurant. **$500,000.**

D. C., Wash.—OFFICE—Fidelity Mutual Life Insurance Co., Tower Bldg., plans by Robert A. Willgoose 300 Montgomery St., Alexandria, Va., office, 1630 Connecticut Ave., N. W., **$582,500.**

▲ **D. C., Wash.**—RETAIL DEPARTMENT STORE—Sears, Roebuck & Co., 4640 Roosevelt Blvd., Phila., Pa., plans by Ballinger Co., 121 N. Broad St., Phila., Pa., retail department store, **$2,700,000.**

▲ **Ill., Chicago**—OFFICE—Railway Exchange Bldg., 80 E. Jackson St., Chicago, Zone 4, plans by Naess & Murphy, 80 E. Jackson St., Chicago 4, office modernization, **$1,000,000.**

Ill., La Grange—SCHOOL—St. Francis Xavier School 145 Waiola St., plans by Nairne W. Fisher, 1025 W. Sheridan Rd., Chicago, 3 story bsmnt., brick, stone elementary school addn. **$500,000.**

▲ **Ill., Wheaton**—MOTHER HOUSE, etc.—Franciscan Sisters, Roosevelt Rd., plans by Ralph Ranft, 3606 Gravois St., St. Louis, Mo., mother house and novitiate **$3,300,000.** CD 9/11/50.

▲ **La., New Orleans**—DORMITORY—Sisters of Holy Family, c/o Diboll Kessels Assoc., archts. 730 Royal St., dormitory, **$1,000,000.**

▲ **Md., Bethesda** — PARKING-SHOPPING CENTER — Alvin Aubinoe, Inc., 1515 19 St. N. W., Wash., D.C., plans by Alvin Aubinoe, 1515 19 St. N. W., Wash., D.C., parking-shopping center Wilewood Manor, Old Georgetown Rd. and Gosvnor Lane. **$10,000,000.**

Mass., Cambridge—STUDENT UNION—Massachusetts Institute of Technology, Dr. J. R. Killian, pres., Mass Ave., plans by Anderson & Beckwith, 11 Beacon St., Boston, student union bldg., Mass Ave. **$500,000.** CD 1/4/49.

▲ **Mo., Kansas City**—COMMUNITY CENTER—Jewish Community Center, c/o Harry B. Strauss, pres., 1600 Linwood Blvd., plans by Kivett & Myers, 1016 Baltimore St., Kansas City, Mo., community center, incl. bldg., out-door pools, courts and parking area, 83 and Holmes-Troost Sts. on 20 acre tract. **$1,000,000.**

Neb., Lincoln—THEATER—Circlet Community Theater Co., 1908 Sewell St., plans by M. I. Aitken, 204 Stuart Bldg., theater. **$500,000.**

Neb., North Platte—HOSPITAL—Lutheran Hospital, North Platte, hospital. **$500,000.** John Latenser & Sons, 1307 Farnam St., Omaha, consult. engrs.

▲ **N. J., Ridgefield Park**—HOTEL, etc.—Turnpike Village Inc., Knickerbocker Rd., Dumont, plans by L. Freeland Fellgraff, 577 Teaneck Rd., Ridgefield Park, hotel, motel and recreational facilities, 20-acre tract near north end of New Jersey Turnpike. **$1,000,000-$2,000,000.**

N. Y., New York—APARTMENT—Armino Campagna, 200 W. 72 St., plans by Tito Di Vincenzo, 2 Columbus Circle, Zone 19, 6 story apartment, Fieldston Rd., south of 238 St., **$600,000.**

N. Y., Brooklyn—SCHOOL—Roman Catholic Chruch of St. Michael, 225 Jerome St., Zone 7, plans by Paul C. Reilly, 111 Fifth Ave., New York, Zone 3, 3 story girls school, 239-51 Jerome St. **$725,000.**

N. C., Durham—SHOPPING CENTER—George Hill, Sr., c/o George Watts Carr, archts., 111 Corcoran St., Durham, shopping center, **$500,000.**

▲ **N. C., Greensboro**—RESIDENTIAL DEVELOPMENT—Friendly Village, Inc., c/o Brown Realty Co., Greensboro, residential development. **$10,000,000.** Seward H. Mott, 2151 K St. N. W., Wash., D. C., consult. engr.

▲ **N. D., Bismarck**—OFFICE—Provident Life Insurance Co., 2nd and Broadway, plans by Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Ill, 6 story, bsmnt., 60x150 ft., concrete framing office. **$1,500,000.**

O., Cleveland—APARTMENT DEVELOPMENT—Van Buren Gardens, Inc., 11513 Kinsman Rd., 18 building, 72-suite co-operative garden apartment development, Critchfield Ave. near Lee Rd, **$810,000.**

O., Columbus—DWELLINGS—Central Homes, Inc., William E. Loving, Jr., pres., 392 S. Drexel Ave., fifty 3-bedroom frame dwellings, Ransburg Heights Addn. **$750,000.**

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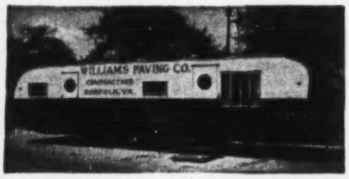

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▲ **O., Shaker Heights**—APARTMENT—Redfern Constr. Co., c/o 16828 Kinsman Rd., plans by Samuel K. Popkins, 16828 Kinsman Rd., 5-story, 60-suite, brick apartment, 19333 Van Aken Blvd. **$1,000,000.**

Pa., Phila.—SCHOOL and HALL—St. Adelbert Roman Catholic Church, 2645 E. Allegheny Ave., plans by G. C. Freeman, 419 Carsonia Ave., Pennsdale, school and hall. **$750,000.**

▲ **Tenn., Memphis**—APARTMENTS—V & M Homes, Inc., c/o W. W. Mink, 4174 Dunn Rd., 2 apartments. **$2,000,000.**

▲ **Tex., Bellaire**—DWELLINGS—Rotterman & Hoffman, 5213 Linden St., Houston, Tract No. 1, (a) 35 dwellings, **$350,000** (b) 30 dwellings, **$300,000** (c) 50 dwellings, **$500,000** (d) 42 dwellings, **$390,000** (e) 41 dwellings, **$425,000**; Tract No. 2, (1), 28 dwellings, **$325,000** (2) 25 dwellings, **$300,000** (3) 44 dwellings, **$425,000** (4) 34 dwellings, **$355,000** (5) 36 dwellings, **$370,000** (6) 40 dwellings, **$390,000.**

▲ **Tex., Grand Prairie**—DWELLINGS—Sherman-Huddleston Constr. Co., Kingsville, Phase 1, 50 frame dwellings, **$515,000**; Phase 2, 30 frame, masonry dwellings, **$325,000**; Phase 3, 35 frame dwellings, **$375,000**; Phase 4, 32 masonry dwellings, **$350,000; Phase 5,** 45 frame dwellings, **$390,000**; Phase 6, 55 frame, stone trim dwellings, **$560,000.**

Va., Alexandria—RESIDENCES—Richard Kirsten, Richmar Constr. Co., 2215 9th St. N. W., Wash., D. C., plans by Carl LeMar Johns, 710 Orkney Parkway, Bethesda, Md., 38 one story brick, concrete residences. **$685,000.**

▲ **Va., Norfolk**—SHOPPING, etc.—Owner c/o Joseph B. Courtney, archt., 424 W. 21 St., and A. Ray Pentecost, Jr., archt., Colonial Ave. and 21 St., combination shopping, office, parking bldg., 9 story. **$5,000,000.**

▲ **Va., South Norfolk**—RESIDENCES—Edgewood Manor Inc., Citizens Bank Bldg., Norfolk, one hundred 1 story frame residences. **$1,000,000,** Samuel A. Steingold, c/o owner, engr.

▲ **Va., Richmond**—HOUSING UNITS—Virginia Methodist Childern's Home, Hamilton and Broad Sts., 10 housing units. **$1,400,000.**

▲ **Man., Winnipeg**—DWELLINGS—Model Homes Ltd., Smithfield Ave. and McGregor St., 400 to 600 dwellings north of Regent Ave. between Hoka and King Sts., Transcona, **$3,500,000-$4,000,000.**

▲ **Ont., Brantford**—HOSPITAL—Sisters of St. Joseph, St. Joseph's Convent, 300 John St. S., Hamilton, 100-bed hospital. **$1,000,000.** CD 6/19.

▲ **Ont. Burlington** — SHOPPING CENTER — Deacon & Arnett, 101 Eglinton Ave. W., Toronto, regional shopping centre, incl. department store, chain stores, office, theatre restaurants, approx. 100 small stores, **$15,000,000.**

▲ **Ont., Ottawa**—APARTMENT BLOCK—M. Zagerman & Co. Ltd., 100 Bayview Rd., 6 story apartment block Elgin St. and Argyle Ave. **$1,400,000.**

INDUSTRIAL BUILDINGS

▲ **La., Baton Rouge**—PLANT—Foster-Grant Co., Inc., Leominster, plastic plant. **$4,000,000.**

▲ **La., Paradis**—PLANT—The Texas Co., Texas Bldg., Houston, Tex., gasoline plant. **$2,500,000.** O. L. Olson Co., Niels Esperson Bldg., Houston, Tex., consult. engr.

▲ **Mich., Cedarville**—PLANT—United States Steel Corp., 71 Broadway, New York, N. Y., limestone processing plant, shipping dock. **$5,000,000.**

▲ **Mich., Dearborn**—ADMINISTRATION—Ford Motor Co., 3000 Schaefer St., Dearborn, plans by Skidmore, Owings & Merrill, engrs.-archts., 100 W. Monroe St., Chicago, Ill., 12 story, brick, steel, 640,000 sq. ft. administration bldg., 3 story service and cafeteria unit adjoining, Southfield Rd. and Michigan Ave., 120 acres. **$14,000,000.** CD 3/19.

Mich., Southfield—LABORATORY—Bendix Aviation Corp., 1104 Fisher Bldg., Detroit, brick, steel, 50,000 sq. ft. research laboratory, Northwestern and 10½ Mile Rds. **$500,000.**

▲ **Minn., St. Paul**—LABORATORY—Minnesota Mining & Manufacturing Co., 900 Fauquier Ave., plans by Giffels & Vallet, Inc., and L. Rossetti, assoc. engrs. and archts., 1000 Marquette St., Detroit 26, Mich., and Ellerbe & Co., consult. engrs. and archts., E. 505 First National Bank Bldg., research laboratory, East Ave. and Hy. 12, **$3,000,000.**

▲ **Pa., Croydon**—PLANT—Penna. Range Boiler Co., 24 and Ellsworth Sts., Phila., industrial plant, **$1,000,000.**

▲ **Pa., Pittsburgh**—OIL STORAGE, etc.—Duquesne Light Co., 435 6 Ave., Zone 19, 1 and 3 story, brick, concrete, steel, Forbes Sub-station and Oil Storage Bldg., Boyd and Shingiss Sts. **$1,000,000.**

▲ **Tenn., Nashville**—PLANT—Crane Co., 836 S. Michigan St., Chicago, Ill., titanium processing plant, **$26,000,000.**

▲ **Tex., Galveston**—POWER PLANT—Houston Lighting & Power Co., 1016 Walker St., Houston, electric power plant enlargement, **$3,500,000**; electric power line exten., **$1,000,000**; electric transformer constr., **$400,000.** CD 5/24/48.

▲ **Tex., Houston**—POWER PLANT—Houston Lighting & Power Co., 1016 Walker St., electric power plant, **$6,500,000**; electric power plant imprvs., expansion, **$4,000,000**; electric power transmission lines, **$1,500,000**; electric transformers constr., **$750,000.** CD 3/28/51.

▲ **Alaska, Juneau**—PLANT—Georgia Pacific Plywood Co., 600 N. Capitol Way, Olympia, Wash., chemical pulp plant, ground wood pulp plant, paper mill and power plant with 96,000 tons a year capacity. **$56,511,000.**

UNCLASSIFIED

▲ **Colorado and Wyoming**—PIPE LINE—Colorado Interstate Gas Co., Colorado Springs National Bank Bldg., Colorado Springs, Colo., 365 mi. 23 in. pipe line and 5500 hp. compressor station, Green River, Wyo. **$23,298,653.**

▲ **GEORGIA and FLORIDA**—TELEPHONE SYSTEM—Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., radio-relay system between Atlanta, Ga. and Jacksonville, Fla.

▲ **Louisiana**—NATURAL GAS SUPPLY LINES, etc.—The Texas Co., Texas Bldg., Houston, Tex., laying 111 mi. 6-to 14-in. natural gas supply lines from fields to certain plants in vicinity of New Orleans, Paradis, **$1,500,000**; compressor station, Lockport, **$150,000**; compressor station, Leesville, **$150,000**; compressor station, Bay Ste. St. Elaine, **$190,000**; Compressor Station No. 1, Houma, **$200,000**; Compressor Station No. 2, Houma, **$175,000.**

Minn., Minneapolis—TELEVISION STATION—Meredith Engineering Co., Inc., 1716 Locust St., Des Moines, Ia., television station. **$732,000.** George P. Adair, 1610 I St. N.W., Wash., 6, D. C., consult. engr.

▲ **Mo., St. Joseph**—COLISEUM, etc.—Bd. P. Wks., City Hall, bond election Apr. 14, municipal coliseum, **$1,433,000**; swimming pools, various other recreational facilities, **$473,000**; dug out viaduct leading into Wyeth Park, **$64,000.**

▲ **Mo., St. Joseph**—LIGHTING—Bd. P. Works, City Hall, **$1,000,000** bond election **Apr. 14,** imprv., exten. city lighting.

▲ **South Carolina**—GAS PIPE LINE—South Carolina Electric Gas Co., 328 Main St., Columbia, natural gas pipe line, Aiken, Orangeburg, Colleton and Bamberg Counties. **$6,000,000.**

▲ **Texas and Louisiana**—GAS LINE—Tennessee Gas Transmission Co., Commerce Bldg., Houston, Tex., 28 mi. 30 in. gas loop line from near Edna to East Bernard, **$1,100,000**; 23 mi. 30 in. gas loop line from Sinto to near Refugio, **$1,200,000**; 43 mi. 26 in. gas loop line from Edinburg to near Falfurrias, **$1,750,000** all foregoing are in Texas; 22 mi. 30 in. gas loop line from Natchitoches to Goldonna, La., **$850,000**; compressor station, Kinder La. **$225,000.** CD 8/21/47.

▲† **Va., Little Creek**—STEAM and ELECTRICAL SYSTEMS—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, steam distr. sys., NOY 78216, **$500,000**; electrical distr. sys. and sub-station, NOY 78215, **$1,700,000,** at Naval Amphibious Base. CD 8/18, under Public Buildings.

▲ **Alberta**—GAS DEVELOPMENT—Northwest Utilities Ltd., 10124 104 St., Edmonton, gas development in Legal and Fort Saskatchewan areas, transmission lines, expansion distribution plant new compressor stations in Wetaskiwin area, office bldg. **$4,000,000.** CD 1/31/51.

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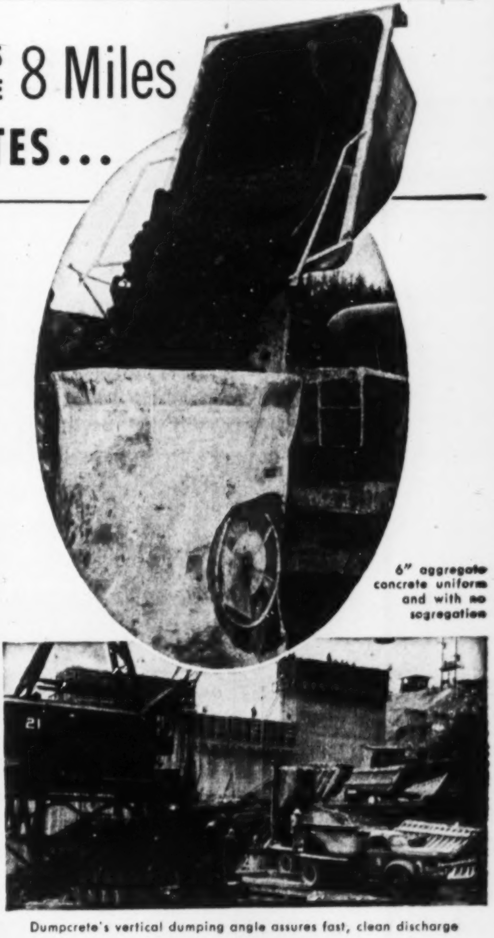

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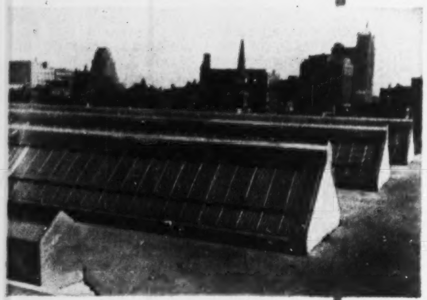

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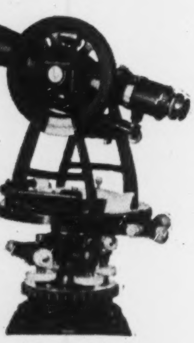

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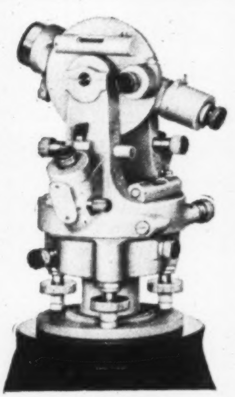

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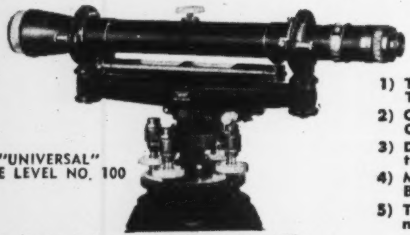

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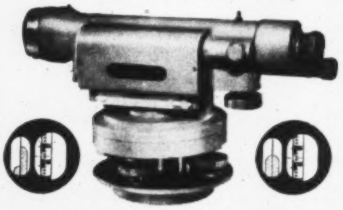

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 17 Vermont — April 29 Maine

BIDS ASKED—BUILDINGS

Mass., Shrewsbury—SCHOOL—B.A. 4/17—Town School Dpt., Chas. Bernard, chn. Comn., O'Donnell Ave., elementary school off North Quinsigamond Ave. $478,000. Plans deposit $50, S. W. Haynes & Assoc., 336 Main St., Fitchburg, archts. CD 5/16.

Mass., North Attleboro—SCHOOL—B.A. 4/23—Town, A. J. Mott, supt. Schools, Proj. 19-P-1040, Junior and Senior High School, South Washington St. $750,000. Plans deposit $50, refundable, McLaughlin & Burr, 131 State St., Boston, archts. CD 2/8/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Martin & Zanke Co., Inc., 215 Main St., Rocky Hill, Conn., CA **$600,000**, Contr. 53, sewer, manholes road replacement, Marion, Grand Sts., etc., BRISTOL, CONN. City, City Hall, Bristol, Conn. Bids Mar. 9. CD 3/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Southern New England Constr. Co., Inc.**, 983 Main St. Hartford, Conn. LB. **$1,489,000**, Police ADMINISTRATION and COURT bldg., Contract E 53-147, Talcott Ave. HARTFORD, CONN. City, Municipal Bldg., 550 Main St. Hartford, Conn. Bids Mar. 26. CD 3/4.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 22 New Jersey

STREETS AND ROADS
April 14 Maryland — April 20, 22 New Jersey

▲ **Pa., Washington**—B.A. 4/27—Joint Auth. of Washington and East Washington, 121 S. Main St., Washington, sewage disposal plant and sewerage sys., Chartiers Valley, $2,153,000. Morris Knowles, Inc., 1312 Park Bldg., Pittsburgh, engr. CD 4/14/52.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ar-Beth Homes**, c/o George Foster, archt., 4 Liberty St., Hempstead, N. Y. Owner Builds. **$1,200,000.** 82 HOUSES, on 30-acre tract at Branch and Lewis Sts., FREEPORT, N. Y.

Mar-Mes, Inc., 271 North Avenue, New Rochelle, N. Y., LB **$698,890**, general constr. Junior and Senior HIGH SCHOOL, GUILDERLAND, N. Y. Central School Dist., Guilderland, N. Y. Bids Mar. 11. CD 3/6.

V. Sarason Corp., c/o J. J. Klaber, archt., 41 Prime St., Huntington, N. Y. Owner Builds. **$700,000.** 42 HOUSES on tract on East Rogues Path, HUNTINGTON, N. Y.

▲ **Parkside Hills, Inc.**, c/o George Foster, archt., 5 Liberty St., Hempstead, N. Y. Owner Builds. **$1,500,000.** 140 HOUSES on tract at New York Ave., south of Jericho Turnpike, HUNTINGTON, N. Y.

Massapequa Shores Homes, c/o Joseph DeMarco, archt., 165 Cherry St., Farmingdale, N. Y. Owner Builds. **$750,000.** 58 HOUSES on 16-acre tract on Division Ave. south of Merrick Rd., MASSAPEQUA, N. Y.

▲ **Delphi Constr. Co. Inc.**, 500 Zerega Ave., New York 72, N. Y., LB **$1,284,780**, general contract KITCHEN, BAKERY, STOREHOUSE BLDG., Bldg. 106, Wards Island State Hospital, NEW YORK, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany. Bids Mar. 26. CD 3/19.

Navarro Corp., 6219 Broad St., Pittsburgh, Pa., CA Approx. **$600,000.** Research LABORATORY, IRWIN, PA. Robertshaw Fulton Controls Co., Greensburg, Pa. Bids Dec. 2. CD 11/28.

▲ **Austin Co.**, 16112 Euclid Ave., Cleveland, O., CA **$1,000,000**, design and construct 1 story, brick, block, steel MFG. BLDG. addn., WEST MIFFLIN, PA. Shwayder Bros., Inc., Lebanon Church Rd., Pittsburgh, Pa.

Henry Kimmel & Sons, c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$600,000**, APARTMENT for 80-families, 19 Old Mamaroneck Rd., WHITE PLAINS, N. Y.

Fireside Village Homes, c/o Robert M. Lee, archt., Ibsen St., Woodmere, N. Y. Owner Builds. **$850,000.** 50 HOUSES, Longacre Ave. and Peninsula Blvd., WOODMERE, N. Y.

Potomac Homes, Inc., 5915 Massachusetts Ave. N. W., Wash., D. C. Owner Builds. **$700,000**, 76-unit APARTMENT DWELLING, Wheeler Rd. and Southern Ave. S. E., WASH., D. C. Milton J. Prassas, 5915 Massachusetts Ave. N. W., Wash., D. C., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 15 Louisiana — April 16 Virginia
April 24 Alabama

STREETS AND ROADS
April 15 Louisiana — April 16 Virginia
April 24 Alabama — April 29 North Carolina

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

ALABAMA—State Hy. Dpt., Montgomery,
C. F. Rule Constr. Co., 217 13 Ave. N., Nashville, Tenn. LB, **$907,000**, bridge over Coosa River, Gadsden, Etowah Co. Bids Mar. 27. CD 3/27.

▲† **McAlister-Davis Co.**, 833 State St., Pine Bluff, Ark. LB **$1,392,500.** Revetment at various locations on banks of Miss. River between Wickliffe, Ky. and Richardson Landing, Tenn., KENTUCKY and TENNESSEE. U. S. Eng., P. O. Box 97, Memphis 1, Tenn. Bids Mar. 26. CD 1/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Allied Virginia Constr. Co.**, 618 Cameron St., Alexandria, Va., CA. Est. **$3,500,000.** 246 unit APARTMENT dwellings, at Brookville, ALEXANDRIA, VA. H. Michnick and Sal DiMiao, c/o contractor. CD 2/9.

▲ **J. W. Bateson Co., Inc.**, Irwin-Keasler Bldg., Dallas, Tex., LB **$1,325,475.** 250 DWELLINGS, 7 LAUNDRY BLDGS., one OFFICE and MAINTENANCE BLDG., Defense Housing Proj. VA-8D1, Camp Pickett, BLACKSTONE, VA. Public Housing Admin., 900 N. Lombardy St., Richmond, Va. E. Tucker Carlton, 1009 E. Main St., Richmond, Va., archt. CD 3/9, under LB.

O. W. Godwin, Inc., Dunn, N. C., LB, **$812,610.** HIGH SCHOOL addn., WILMINGTON, N. C. New Hanover Co. Bd. Educ., Wilmington, N. C. CD 6/25.

Ruscon Constr. Co., 149 E. Bay St., Charleston, S. C. LB **$600,437**, HOSPITAL addn., CONWAY, S. C. Conway Hospital, Inc., Conway, S. C. Bids Mar. 25.

W. F. Holt & Sons, 1531 Demonbreun St., Nashville, Tenn. CA. **$554,600**, Isaac Lytton Junior HIGH SCHOOL, NASHVILLE, TENN. Davidson Co. Bd. Educ., Court House, Nashville, Tenn. Bids Mar. 26. CD 3/31, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Mich., Detroit**—B.A. 5/5—Wayne Co., Christopher J. Mulle, co. drain comr., 3800 Cadillac Tower, Middle Rouge Interceptor to provide sewage disposal for Northville, Canton, Dearborn, Redford, Plymouth, Nankin, Livonia and Garden City. $4,500,000. Leroy Smith, co. engr. CD 9/20/51, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., State Office Bldg., Columbus,
Earl E. Sockman, Route No. 1, Fredericktown, O., LB, **$59,887**, est. $68,180, type T-71 and structure 0.153 mi. CR 82 and 96, S-8 (4), Village of Valley View, Cuyahoga Co.;
John R. Jurgensen, P.O. Box 254, Newtown, O., LB, **$74,748**, est. $91,450, Type T-35, 0.597 mi. CR 63, USR 50B-11.70, AA-1, AA-AS-2, (access road to Atomic Energy Plant), Hamilton Co.;
Foley Constr. Co., 5050 Orchard St., Cincinnati, O. LB, **$1,298,011**, est. $1,401,100, Type T-71, 2.539 mi. USR 50-(14.48-16.75), A-U-1100 (3), city of Cincinnati, Hamilton Co.;
cancelled bids to have been opened Mar. 24, Type T-35 on B-20 and structures 7.286 mi. SR 8 (20.31-27.98), F-19 (7), (Villages of Boston Heights and Northfield), Summit Co.; Type T-50 and structures 0.307 mi. CR 27, S-1101 (1), Village of Olmsted Falls, Cuyahoga Co. Bids Mar. 24. CD 3/3.

▲ **OHIO**—State Hy. Dpt., State Office Bldg., Columbus,
Foley Constr. Co., 5050 Orchard St., Cincinnati, O. CA. **$1,298,011**, est. $1,401,100, grading, construct retaining walls, water lines, c. conc. paving 2,539 mi. U. S. R. 50, Sections (14.48-16.75), A-U-1100 (3), City of Cincinnati, Hamilton Co. Bids Mar. 24. CD 4/1, under LB.

Loselle Constr. Co., 1555 Goddard St., Wyandotte, Mich. CA **$830,547.** 153,000 sq. yd. 6 and 8 in. b. conc. various streets, ALLEN PARK, MICH. Village, R. Don Pretty, city clk., Allen Park, Mich. Bids Mar. 10. CD 3/4.

Oak Constr. Co., 220 E. 7 St., Royal Oak, Mich. CA **$884,514**, est. $1,000,000. 237,000 sq. yd. c. conc., 6,000 sq. ft. sidewalks, appurtenances, ROYAL OAK, MICH. City, Gladys Holmes, city clk., Royal Oak, Mich. CD 3/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

James I. Barnes Constr. Co., 131 N. Ludlow St., Dayton, O., CA. **$793,523**, general contract, men's DORMITORY, DAYTON, O. University of Dayton, 300 College

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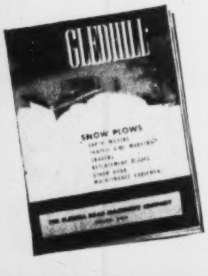

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Park St., Dayton 9, O. Bids Feb. 26, awarded Mar. 24. CD 3/11, under LB.

▲† **Reynolds Electric Co., Inc.**, 479 S. Wyoming St., Albuquerque, N. M. and **Newbery Electrical Corp.**, 1038 Venice St., Los Angeles, Calif., CA. Est. **$100,000,000,** electrical work;
Royce Kershaw Co., Inc., 210 Pollard St., Montgomery, Ala. CA. Est. **$376,840,** railroad facilities;
Brown & Kerr, 228 N. LaSalle St., Chicago, Ill., CA. Est. **$819,160,** roofing on one of the process bldgs., for GASEOUS DIFFUSION PLANT, (Subcontractors under Peter Kiewit Sons' Co., P.O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., PIKETON and WAKEFIELD, O. CD 8/13/52.

Carl Geupel Constr. Co., 1919 N. Meridian St., Indianapolis, 2, Ind., CA, **$689,000**. 4 story bsmnt., stone, brick men's DORMITORY addn., INDIANAPOLIS, IND. Butler University Bd. Trustees, 103 E. Washington St., Indianapolis, 4, Ind. Bids Mar. 10, awarded Mar. 29. CD 2/12.

United Builders, Glass Block, Marion, Ind., Owner Builds. **$550,000**. 50 HOMES, MARION, IND.

O. W. Burke Co., 1032 Fisher Bldg., Detroit, Mich. CA **$545,000**. 5 story, brick, steel multiple APARTMENTS, DETROIT, MICH. Covington Arms Apartments, 338 Covington Dr., Detroit, Mich. Bids Feb. 16. CD 1/30.

J. A. Utley Co., 723 E. 10 Mile Rd., Ferndale, Mich. CA Est. **$850,000.** brick, steel food WAREHOUSE and OFFICE facilities, Six Mile and Oakland Rds., HIGHLAND PARK, MICH. Davidson Brothers, 1200 E. Six Mile Rd., Highland Park, Mich. CD 3/19.

Green & Sarko, 3966 Twelve Mile Rd., Southfield, Mich. Owner Builds. **$850,000**. 75 brick HOMES, Artesian Heights, Thirteen Mile Rd., SOUTHFIELD, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 17 Minnesota
STREETS AND ROADS
April 17 Minnesota

BIDS ASKED—BUILDINGS

Tex., Galveston—STORE—B.A. After 4/1—E. S. Levy Co., 2227 Postoffice St., department store. $750,000. Irving R. Klein & Assoc., 1317 Austin St., Houston, archts. CD 3/30, under LB.

▲ **Tex., Beaumont** — CHEMICAL PLANT, etc.—Bids Asked—Jefferson Co.: E. I. duPont de Nemours & Co., Neils Esperson Bldg., Houston, chemical plant unit mfg. methionine. $3,750,000 general road and area hard type paving, $80,000 plant site and area dirt and earthwork, $80,000; sanitary sewers, drainage, $75,000; water sys. $50,000, near here. CD 1/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MISSOURI**—State Hy. Dpt., **Jefferson City,**
Koss Constr. Co., 205 Farm Bureau Bldg., Des Moines, Ia. CA **$531,606**. 24 ft. c. conc. 4.846 mi. Crawford Co.; CA **$509,146**. 24 ft. c. conc. 4.717 mi. Crawford Co.;
Land Constr. Co., 502 Seneca St., St. Joseph, Mo. CA **$235,817**. 24 ft. b. conc. 1.414 mi., Nodaway Co.; CA **$106,116**, b. conc. 2.22 mi. Nodaway Co. Grand total $1,382,685. CD 3/25, under LB.

MISSOURI—State Hy. Dpt., Jefferson City,
The Maxwell Bridge Co., Columbus, Kan. CA **$597,120.** two 50 ft. I-beam spans, five 180 ft. steel truss spans, Sta. 4 plus 95, Taney Co. Bids Mar. 16, awarded Mar. 28. CD 3/25, under LB.

† **L. G. Barcus & Sons,** 1480 State St., Kansas City, Kan. LB **$663,059,** est. $504,466. altering, approaches north ends A-S-B and Hannibal Bridges, piers, abutments, river channel imprvs., Kansas City, Clay Co., CIVENG 23-028-53-118, MISSOURI. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 27. CD 3/20.

† **Midwest Pre-Cote Co.,** 7600 E. 17 St., Kansas City, Mo. CA **$504,636,** est. $607,673, roads, parking areas, Stage II Grandview Air Force Base, Eng. 23-028-53-96, GRANDVIEW, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 26. CD 3/11.

Union Constr. Co., 1401 Fairfax Trafficway, Kansas City, Kan. CA **$522,365,** substructure;
Maxwell Bridge Co., Columbus, Kan. CA **$531,960,** superstructure Paseo Bridge south approach viaduct; **Universal Bridge Co., Inc.**, Scarritt Bldg., Kansas City, Mo. CA **$521,850,** substructure;
Maxwell Bridge Co., Columbus, Kan. CA **$753,260,** superstructure, Paseo Bridge north approach, KANSAS CITY, MO. Jackson and Clay Counties, Court House, Kansas City, Mo. Grand total $2,329,435. CD 3/26 under LB.

▲† **C. Wallace Plumbing Co., Inc.**, P.O. Box 1209, Dallas, Tex. CA **$1,088,578**, est. $1,041,380. central heating plant, Sedalia Air Force Base, Eng.-23-028-53-79, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 4, awarded Mar. 27. CD 3/18, under LB.

S. E. Evans Constr. Co., P. O. Box 903, Ft. Smith, Ark., CA, **$450,000,** tunnel under Arkansas River for water supply;
Forsgren Bros., 3023 N. 23 St., Ft. Smith, Ark., CA, **$188,957,** filter plant exten., FORT SMITH,

FLOODLIGHT PROJECTOR
Burns 40 hours on 6 pints of KEROSENE

This Model F. L. 6 Floodlight is shown complete with short stand—Weighs 27 lbs. Overall height 26 inches. Also available on 5 to 8 ft. tripod with turntable top—$85.
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CHICAGO

- A self-contained unit with no cables—entirely independent of batteries, generators, and the like, which makes it more mobile. Wind and rain proof.
- The Floodlight Projector gives a white light of 5000 reflected candle power. It is just the thing for night construction work and for emergencies when power is not available. *For complete details we suggest you write.*

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CORE BORINGS
for Foundations, Dams, Bridges and all Heavy Structures
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Prompt, competent Contract Bond Service

ÆTNA CASUALTY AND SURETY COMPANY
Affiliated with
Ætna Life Insurance Company
HARTFORD 15, CONNECTICUT

ARK. City, City Hall, Ft. Smith, Ark. Bids Mar. 24. CD 3/13.

▲† **J. D. Armstrong Co., Inc.,** 1606 Grand St., Ames, Ia., LB **$1,152,881,** earthwork and structures, Franklin Canal, in Bostwick Div., in vicinity of Franklin and Riverton, Franklin Co., Spec. DC 3891. NEBRASKA. Bureau Reclamation, Dpt. Interior, McCook Neb. Bids Mar. 26. CD 3/11.

▲ **H. B. Zachry Co.,** Transit Tower, San Antonio, Tex. CA. **$2,418,500,** laying 116.8 mi. 14- to 16-in. welded joint gas pipe line from near Realitos, Duval Co. to near Westhoff, DeWitt Co., incl. crossing of the Guadalupe River, TEXAS. Wilcox Trend Gathering System, Inc., c/o Harry Bass Drilling Co., Magnolia Bldg., Dallas, Tex.

H. B. Zachry Co., Transit Tower, San Antonio, Tex., CA **$968,500.** 23 mi. 30 in. loop gas line between Sinton and Refugio, TEXAS. Tennessee Gas Transmission Co., Commerce Bldg., Houston, Tex. CD 3/24.

Chicago, Burlington & Quincy R. R. Co. (Fort Worth & Denver Ry. Co.) H. R. Clarke, Ch. Engr., 547 W. Jackson Blvd., Chicago 6, Ill., Purchases, Day Labor. **$950,000,** laying heavy steel rails from Fort Worth westward, FORT WORTH, TEX. CD 12/19/52.

COLORADO—State Hy. Dpt., Denver,
Henry Shore Constr. Co., Littleton, CA **$579,666,** grading, stabilization, structures asph. 6.335 mi. Colo Proj. FI 002-2 (25) Unit 1, El Paso Co. Bids Feb. 11. CD 2/17, under LB.

▲ **Allison & Haney,** 1412 N. Broadway, Albuquerque, N. M. CA **$1,594,539,** water transmission and water feeder lines, ALBUQUERQUE, N. M. City, Albuquerque, N. M. Bids Jan. 27. CD 2/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Olson Constr. Co.,** 410 S. 7 St., Lincoln, Neb., CA **$1,267,534,** general contract. men's DORMITORIES, LINCOLN, NEB. University of Nebraska, Lincoln, Neb. Bids Mar. 17. CD 3/24, under LB.

W. D. Ferguson & Sons, Box 446, Brownsville, Tex., CA **$701,300,** Ebony Heights and Cormack SCHOOLS, BROWNSVILLE, TEX. Brownsville Independent School Dist., Brownsville, Tex. Bids Mar. 17, awarded Mar. 26. CD 3/25, under LB.

▲ **Chemical Processes, Inc.,** c/o J. O. Brown, supt., Etter, Tex., CA. **$2,750,000,** nitric acid chemical PLANT, ETTER, TEX. Phillips Chemical Co., Etter, Tex. Chemical & Industrial Corp., 256 McCullough St., Cincinnati, O., engrs. CD 3/6/50.

▲ **Celanese Corp. of America,** c/o R. W. Kixmiller, Kings Mill, Tex., Own Forces. **$1,250,000.** expansion vinyl acetate production PLANT, KINGS MILL, TEX. CD 5/22, under Tex., Pampa.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
April 22, 23 California
STREETS AND ROADS
April 22, 23 California

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—SCHOOL—B.A. 4/17—Los Angeles Bd. Educ., 1425 S. San Pedro St., 4 rein.-con. Fulton Junior High School buildings $1,430,000. Marsh, Smith & Powell, 208 W. 8 St. archts. CD 6/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Guy F. Atkinson Co.,** Box 259, Long Beach Calif., CA, **$748,312,** Los Angeles River Channel Improvement River Mile 10.67 to River Mile 1048, South Gate Los Angeles, Co., CIVENG-04-353-53-30, CALIFORNIA U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 26.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Sask., Regina—RUNWAY—B.A. 4/17—Dpt. Transport, Ottawa, Ont., 6000x200 ft. north-west-southeast runway, at airport, $600,000. Plans deposit $25.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Grove, Shepherd, Wilson & Kruge, Inc.,** 247 Park Ave., New York, N. Y., CA. **$1,018,361,** est. $1,100,845. organizational maintenance bldgs., Items 1 and 2, Inv. 53-50, Ladd Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Feb. 9. CD 2/26, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

J. B. Warrack Co., 400 2 Ave. W., Seattle, Wash., LB **$636,000,** est. $450,000. 2 story, 142x188 ft. steel SHOPPING CENTER, 67x142 ft. theater, SPENARD, ALASKA. Lincoln Park Shopping Center, Spenard, Alaska. Bids Mar. 19. CD 2/18.

(Proposal Advertisements see pp. 103 to 105)

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For Reliability
And Durability

1852

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CHICAGO·U·S·A

1953

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Manufacturers of Pile Driving Hammers and Pile Extractors

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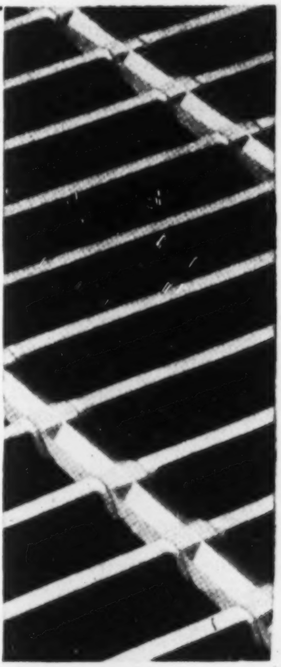
GARY

Welded Grating

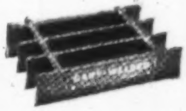
with Hexagonal Cross Bars



• This one-piece grating features design, construction, and appearance. The main bearing bars and the hexagonal cross bars are welded, insuring a durable unit. Our method of manufacture results in the tops of all bars being flush.

This particular design of welded grating is made with the main bars on 1-3/16" centers or .915 centers and the cross bars on 4" centers in panels 25" or 36" wide, and lengths to 40'-0".

Special gratings can be furnished with cross bars spaced on 1½"—2"—2½" or 3" centers.



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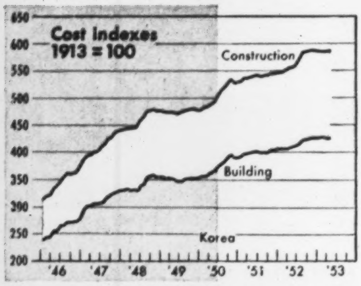
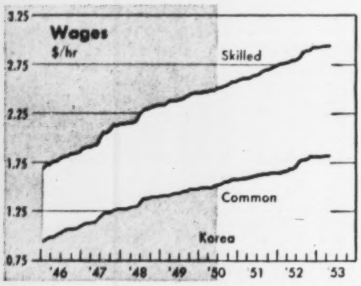
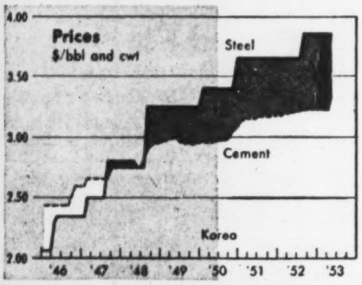
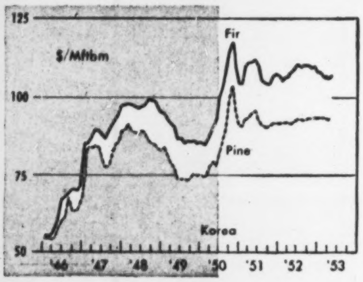
APRIL CONSTRUCTION SCOREBOARD









ENR INDEXES (1913 = 100), 20-cities' average	1953 April	% Change from last Month	Year
Construction Cost	589.53*	+0.4	+6.4
Building Cost	426.45*	+0.4	+4.5

* Subj. to revision.

WAGE RATES, 20-cities' average			
Common	$1.824	+0.2	+8.6
Skilled (aver. 3 trades)	2.950	+0.03	+6.3
Bricklayers	3.282	+0.1	+5.6
Structural Ironworkers	2.877	0.0	+6.1
Carpenters	2.692	0.0	+7.2

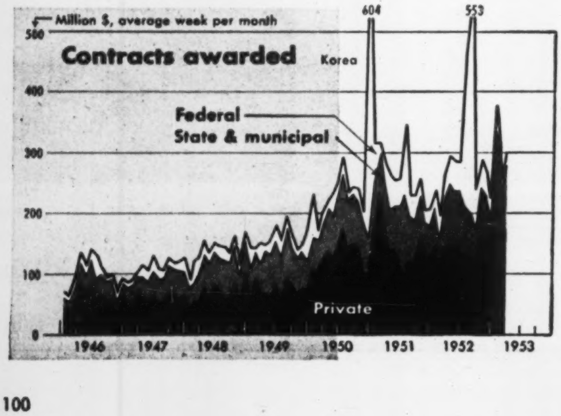
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.337*	+3.6	+4.9
Structural Steel, (3-mill aver.), per cwt	3.850	0.0	+5.5
Sand, per ton	2.174	+1.9	+3.3
Lumber, 2x4 Fir, per M. ft. bm	107.625	+1.2	−0.2
Lumber, 2x4 Pine, per M. ft. bm	93.200	+0.2	+1.9
Common brick, per M	31.669	+0.2	+1.3
Ready-mixed concrete, per c. y	11.473	+0.9	+5.2
Structural Clay Tile, 3x12x12 per M	154.388	0.0	+0.3

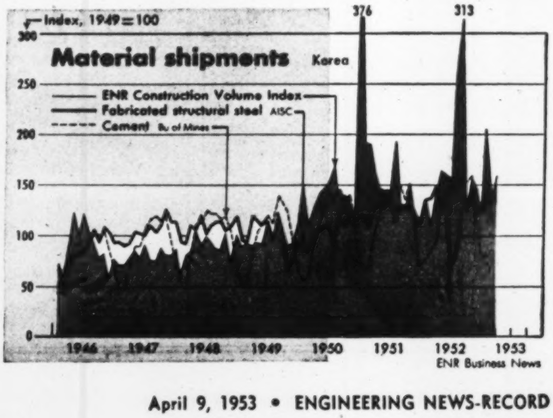
CONTRACTS AWARDED (Millions)	1953 Mar.	3-Mos.	% Change from '52 Mar.	3-Mos.
Total U. S. (ENR reported)	$1,200.0	$4,109.6	+15.0	+35.7
Private	695.7	2,524.4	+26.6	+49.6
Public	504.3	1,585.2	+ 2.2	+18.2
Federal	79.4	407.5	−38.0	− 6.3
ENR Volume Index, '13 = 100	547	580	+ 7.4	+27.5

NEW CAPITAL (Millions)				
Total	588.3	1,874.9	−16.2	+ 7.6
State & Municipal Bond Sales	425.8	1,052.2	+84.4	+58.4
Corporate Security Sales	153.9	790.5	−66.2	−22.3
Federal (non-federal work)	8.6	32.2	−48.1	−45.4
Federal (federal work)	———	———	———	———

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	Jan. (J) Feb. (F)	Dec. 1952 (D'52) 2-Mos. ('53) (2)	% Change from Mo.	Yr.-Cum.
Cement bbls, Bu. of Mines	13.520(J)	251.136(D'52)	+64.9(J)	+4.1(12)
Fabr. Struc. Steel, tons AISC	0.237(F)	0.477(2)	− 3.6(F)	−2.8(2)
Lumber, mil. ft. bm., NLMA	3.011(J)	37.271(D'52)	+ 5.9(J)	−1.0(12)
Lumber Prod., mil. ft. bm., NLMA	2.960(J)	37.651(D'52)	+ 5.8(J)	−4.0(12)
Contract Constr. Employ., BLS	2.255(F)	2.261(2)†	− 2.3(F)	−2.2(2)

† Average.





BUSINESS AND FINANCE

Contracts gain again in March, but rate of advance tapers

Heavy construction contract awards continued to gain in March. Total awards reported to Engineering News-Record were slightly over $1.2 billion (table below). Contracts continued to show big increases over the same period last year, although the rate of gain tapered off somewhat.

For March, volume was 15% higher than for the 1952 month. Total awards for the first quarter are 36% ahead of last year. For the first two months of this year, they were 47% ahead.

This gain is far above what was originally forecast for 1953. And it's particularly significant when you consider that federal contract awards were slowed to a walk in February and March by restrictions on letting of new contracts.

• Private leads—So far, of course, the big gains are in the field of private construction, as distinguished from contract awards for public works given out by federal, state, and local governments. Total private awards for the first quarter were up 50%—a very striking gain. But this gain tapered off in March, which was 27% ahead of the same 1952 month.

Most of this scheduled private construction is in industrial building and private mass housing, which between them account for about half of total contract volume this year.

Industrial volume is second only to the 1951 period, when defense expansion was hitting its peak. It's up 50% over the first quarter of last year. Private mass housing is up even more—54% for the quarter.

The biggest percentage gain in the private field is in awards for commercial buildings. Although total volume ($224 million) is relatively small, compared to the two more important private classifications, commercial building has gained 84% in the first quarter.

• State and municipal—State and municipal work also show gains, tapering down in March. For the first quarter, total awards were up 30%, and up 16% in March. Sewerage work, highway, and bridge contracts account for much of the big increase.

Even federal awards have shown a little more strength in the last couple of weeks. But for the first quarter, awards are down 6%, with March 38% below March of last year. The bulge of new contracts in January helped offset the decline which appeared in February and March.

If you put all public work together, you'll see that the biggest percentage gain is in bridges, up 220% over last year. There's a small gain (7%) in the awards for public buildings, the most important category in the public field. Awards for streets and roads are up 13%, and the "unclassified" category is up 32%. But another important class, public housing, is down 21% for the first quarter.

• Regions—When you break awards down by regions, the Middle West continues to gain fastest. Total awards here are almost $1.2 billion, up 153% for the quarter, up 68% for March.

First-quarter volume is also up in the Middle Atlantic, West, and New England states. In New England, however, the picture is changing. March awards were 14% below the same month in 1952. In the Far West region, industrial building awards have picked up steadily in the first quarter.

In the South, total awards for the quarter are 10% behind last year. But contracts picked up sharply last month. There were heavy March awards in industrial building, private mass housing, commercial building, public buildings, and highways.

In the states between the Mississippi and Rockies, first-quarter volume is down about 3%, and March volume is down about 6%. However, this region leads in total awards for March.

ENGINEERING CONSTRUCTION CONTRACTS—MARCH 1953

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	March, 1953							U. S. Cumulative Three Months		% Change	Canada March
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1953	1952	'52 to '53	1953
Public Works											
Waterworks	1,905	1,945	8,023	1,986	6,057	3,698	23,614	59,688	65,363	− 9	946
Sewerage	339	7,659	1,491	5,394	5,586	1,889	22,358	91,686	49,957	+84	818
Bridges	1,694	16,136	8,942	71,246	7,677	37,207	142,902	215,989	67,575	+220	5,215
Earthwork and drainage	56	745	1,476	508	19,448	1,789	24,022	91,737	99,120	− 7	275
Streets and roads	4,469	20,084	28,438	15,478	31,584	12,514	112,567	301,375	266,924	+13	1,243
Public buildings, residential	366	6,689	19,285	1,212	....	2,029	29,581	186,335	236,335	−21	....
Other public buildings	8,910	24,913	24,345	16,308	13,206	15,507	103,189	414,497	386,866	+ 7	4,849
Unclassified	1,302	3,760	11,551	5,279	10,556	13,635	46,083	223,877	169,007	+32	2,537
Total public	**19,041**	**81,931**	**103,551**	**117,411**	**94,114**	**88,268**	**504,316**	**1,585,184**	**1,341,147**	**+18**	**15,883**
Federal government (included in above classifications)	1,850	3,486	26,393	3,364	28,901	15,389	79,383	407,479	434,852	− 6	6,583
Private											
Bridges	....	....	....	....	....	....	....	4,150	9,840	−58	....
Industrial buildings	1,886	9,566	54,710	53,548	93,606	72,995	286,311	1,046,855	698,060	+50	14,506
Mass housing	9,972	84,141	51,120	32,503	93,363	8,234	279,333	1,063,871	690,074	+54	24,260
Commercial buildings	3,364	14,656	22,957	10,925	9,200	3,084	64,186	224,069	121,455	+84	7,471
Unclassified	60	5,560	10,613	25,660	22,842	1,167	65,902	185,460	167,502	+11	7,229
Total private	**15,282**	**113,923**	**139,400**	**122,636**	**219,011**	**85,480**	**695,732**	**2,524,405**	**1,686,931**	**+50**	**53,466**
Total Engineering Construction:											
March, 1953—4 weeks	**34,323**	**195,854**	**242,951**	**240,047**	**313,125**	**173,748**	**1,200,048**	....	....	....	**69,349**
February, 1953—4 weeks	79,833	276,990	153,451	183,927	195,704	133,116	1,023,021	....	....	....	32,060
March, 1952—4 weeks	39,891	173,257	209,558	142,975	330,302	146,868	1,042,851	....	....	....	57,309
Three Months—1953	**158,697**	**783,961**	**663,238**	**1,160,951**	**830,676**	**512,066**	....	**4,109,589**	....	**+36**	**205,585**
Three Months—1952	96,942	540,068	734,391	458,163	856,467	342,047	....	....	3,028,078	....	266,018
% Change '52 to '53	+64	+45	−10	+153	−3	+50	....	....	....	....	−23

Bond decline boosts money costs

Governments are weak as market expects long-term issue at 3¼%; they hit new lows last week

Few construction men—and very few businessmen for that matter—pay much attention to the government-bond market. The current decline in governments, for instance, doesn't seem to have much relation to their own business; and it looks too complicated to understand, anyway.

Yet what goes on in this market has a lot to do with the cost of financing construction, for long-term government bonds compete with mortgages and corporate bonds for investors' funds.

There's an important fact you have to keep in mind when thinking about the bond market. When prices decline interest rates go up. That's what has been happening lately. The long-term bonds have been hitting new lows. At par (face value), these bonds pay 2½% interest, but they have dropped so far below par that any one buying them at present prices would get close to a 3% yield.

• **Reason**—The big reason for the current weakness in the bond market is the report that the Treasury may soon offer $1.5 billion or $2 billion of new long-term bonds of 3¼%. This is part of Secretary of the Treasury George Humphrey's program to shift more of the public debt from short-term securities into long-term ones. Right now, the debt is made up predominantly of short issues, and the new administration feels that that is dangerous.

If these bonds are issued, it will increase pressure for boosting the rate on government-insured home mortgages. Right now, government credit officials are split on whether the present 4% rate on GI mortgages is so low that veterans can't get financing. A boost in the rate is still opposed by powerful veterans' organizations, like the American Legion.

The National Association of Home Builders hopes the GI rate will be boosted to 4½%. But Federal Reserve officials, who have a lot to say in setting credit policies, think that a ¼% boost might be enough to loosen up the mortgage lenders. They figure the present 4¼% rate on FHA mortgages could be left unchanged for now.

Industries that have raised money lately by selling bonds have found their interest costs going up. For instance, when Allied Chemical & Dye Corp. sold its huge issue of $200-million, 25-year debentures last week, it priced the offering to yield 3.56%. Comparable high-grade corporate bonds were then selling in the market at prices yielding about ¼% less.

Six-month stability of prices is over

After six months of relative stability, construction costs have begun to inch upward. Cement price increases in 14 cities effective April 1, and scattered lumber hikes (ENR Apr. 2, p. 87) are big factors in edging construction and building costs up 0.4% from last month, as measured by ENGINEERING NEWS-RECORD's cost indexes.

ENR's Construction Cost Index for April is 589.53 (1913 = 100). This is up 6.4% in the twelve months since April, 1952.

The Building Cost Index is 426.45 (1913 = 100). That's 4.5% higher than in April, 1952.

Recent boosts in other materials, like ready-mixed concrete, mortar, sand and gravel, don't affect the indexes.

There were no new wage agreements this month affecting the indexes. Unions in 10 of the 20 U.S. cities are now negotiating new contracts to go into effect between now and June 1.

Here are the highlights of ENR's reports from 21 cities:

Baltimore—There's been an increase in lumber prices because of the current large volume of housing construction. Reinforcing bars have gone up 7¢ per cwt on account of heavy demand.

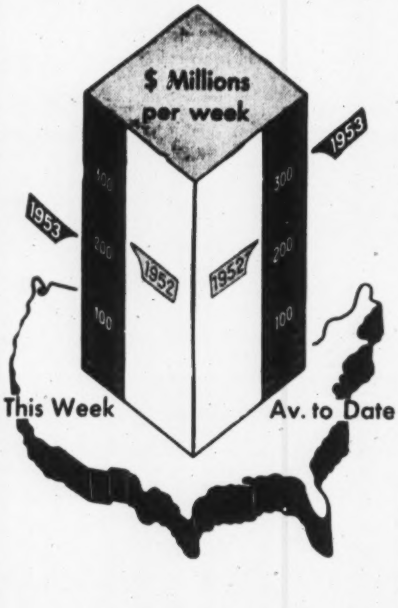
Cincinnati—Price increases in sand, plaster, lime, brick, tile, and concrete sewer pipe are expected. Roofing coating may be boosted as much as 15%.

Cleveland—Crushed slag and clay sewer pipe are up. Gravel and brick prices are expected to climb soon. And window glass is expected to rise about 15%.

Denver—Tar felt roofing rolls are up 25¢ this month, and tar pitch is up $3 a ton. People here expect boosts in brick, paving brick, and vitrified sewer pipe prices soon.

Activity This Week

(in millions of dollars)
As reported to ENR



Amount of contracts let

	This Week	Cumulative 15 wks 1953	1952	% chge
Federal	$30.5	$461.4	$547.0	−16
State and Municipal ..	63.1	1,401.0	1,089.5	+29
Total pub...	93.6	1,862.4	1,636.5	+14
Total priv...	101.5	2,784.3	1,965.7	+42
U. S. Total	$195.1	$4,646.7	$3,602.2	+29

Contracts by type of work

	This Week	Cumulative 15 wks 1953	1952	% chge
Waterworks .	$6.7	$73.5	$75.1	−2
Sewerage ...	4.4	101.2	55.9	+81
Bridges	12.0	237.7	93.0	+156
Highways ..	15.3	392.5	332.0	+18
Earthwork, Waterways.	12.9	108.2	166.2	−35
Buildings:				
Public, excl. hsg.	23.2	478.7	437.9	+9
Housg., pub.	3.2	217.8	296.3	−26
Housg., priv.	46.5	1,175.4	778.6	+51
Commercial	15.5	277.1	147.8	+87
Industrial ..	27.9	1,114.8	850.6	+31
Unclassified .	27.5	469.8	368.8	+27
Total	$195.1	$4,646.7	$3,602.2	+29

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,00.

ENR indexes

		Base Year = 100 1913	1926	1949
Constr. cost	Apr.	589.53	283.39	123.59
	Mar.	587.44	282.38	123.15
Bldg. cost...	Apr.	426.45	230.53	121.22
	Mar.	424.89	229.68	120.78
Volume	Mar.	547	222	158

Bids: April 21, 1953

Contract No. 25, 25A, 25B

WEST VIRGINIA TURNPIKE COMMISSION
ADVERTISEMENT FOR PROPOSALS

Sealed proposals will be received by the West Virginia Turnpike Commission for:

The work to be done under Contract 25 consists in performing the required grading and drainage for approximately 6.3 miles of the West Virginia Turnpike including the substructures for nine bridges and the relocation of approximately 1.7 miles of State Highway. This work is located between the town of Mossy, mile 51.6, and the town of Mahan mile 57.9, Fayette County, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

	Approximate Quantity	
	25A	25B
Clearing and Grubbing..	95 Acres	60 Acres
Excavation (all types)...	1,861,000 C. Y.	1,157,000 C. Y.
Concrete..............	6,000 C. Y.	9,000 C. Y.
Reinforcing Steel.......	503,000 Lbs.	675,000 Lbs.
Culvert Pipes and Underdrains..........	6,500 Lin. Ft.	3,000 Lin. Ft

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A.M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A.M. Eastern Standard Time, on April 21, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton, Chairman
March 23, 1953

Bids: April 22, 1953

South Olden Ave. Extension Realignment

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of South Olden Avenue Extension Realignment, from Fernwood Avenue to White Horse Avenue, in Hamilton Township, Mercer County, Federal Aid Secondary Project No. S-130(2). Length 0.455 mile. The principal items of construction are:

Estimated:
8,300 cu. yds. Roadway Excavation
16,000 sq. yds. 5 in. Macadam Base Course
3,100 tons Bituminous Concrete
7,030 lin. ft. Plain Concrete & White Curb

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Wednesday, April 22, 1953, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Note: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: April 28, 1953

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
HANGAR NO. 7
FOUNDATIONS, UTILITIES AND PAVING
CONTRACT NYA-290.001

Sealed proposals for the construction of foundations and paving and the furnishing and installation of utilities for Hangar No. 7 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:30 p.m., Tuesday, April 28, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: April 23, 1953

One Trash Truck (14 cu. yds.) Mounted on a Four-Wheel Drive Truck with a Ten-Foot Snow Plow

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
PROPOSAL NO. 71

Sealed proposals for furnishing one Trash Truck (14 cubic yards) mounted on a Four-Wheel Drive Truck, with a Ten-Foot Snow Plow with Power Reverse, for delivery to New York International Airport, Jamaica, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M., Thursday, April 23, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: April 28, 1953

Construction of Structures

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A. M., Eastern Daylight Saving Time, the 28th day of April 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania and immediately publicly opened and read aloud for the following contract and/or contracts:

For the construction of structures and the grading, drainage, and paving of Turnpike Section 33B, part of the Delaware River Pennsylvania Turnpike Extension in Upper Dublin and Upper Moreland Townships, Montgomery County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point 4,684 feet east of Traffic Route 152 at Turnpike Station 894+80 in Upper Dublin Township, Montgomery County; thence in an easterly direction 21,975 feet to a point approximately 386 feet east of State Highway Application 26 at Turnpike Station 1114+55 in Upper Moreland Township, Montgomery County, a distance of approximately 4.16 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation 1,033,449 cubic yards
Class 2 Excavation 21,412 cubic yards
Class 2A Excavation 4,640 cubic yards
Special Subgrade 252,138 square yards
Reinforced Concrete Pavement 136,110 square yards
Class "A" Concrete 5,118 cubic yards
Class "B" Concrete 6,104 cubic yards

For the construction of structures and the grading, drainage and paving of Turnpike Section 33C, part of the Delaware River Pennsylvania Turnpike Extension in Upper Moreland and Lower Moreland Townships, Montgomery County and Upper Southampton and Lower Southampton Townships, Bucks County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point 361 feet east of State Highway Application 26 at Turnpike Station 1114+30 in Upper Moreland Township, Montgomery County; thence in an easterly direction 18,171.93 feet to a point approximately 1,604 feet east of Township Road No. 355 at Turnpike Station 130+88 in Lower Southampton Township, Bucks County, a distance of approximately 3.44 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation 596,870 cubic yards
Class 2 Excavation 16,420 cubic yards
Class 2A Excavation 5,470 cubic yards
Special Subgrade 157,635 square yards
Reinforced Concrete Pavement 93,775 square yards

Class "A" Concrete 6,080 cubic yards
Class "B" Concrete 6,020 cubic yards

Copies of plans, specifications and other contract documents including cross-sections, will be on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on April 8, 1953. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5.00) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of fifty (50.00) dollars per set, for each section.

Plans and contract documents exclusive of cross-sections and specifications may be obtained from the Commission upon deposit of ten (10.00) dollars per set for each section, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans, contract documents and cross-sections returned if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents and cross-sections.

The Pennsylvania Turnpike Commission reserves the right to award each section as a separate contract or in a combined contract.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
31 March 1953

(Continued on page 101)

OFFICIAL PROPOSALS

(Continued from page 103)

Bids: April 16, 1953

New York State Road Work Contract C-5

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 16th day of April 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2 L. Ketchum, District Engineer, 109 No. Genesee St., Utica New York						
Herkimer	M.T. 53-6 S.T. 53-17 R.C. 53.-26	New York State Thruway-Mohawk Section-Subdivision 10C, 11A and 12A (Fort Herkimer-Indian Castle); Co. Rd. #66; Mohawk-Jacksonburg-Little Falls, S.H. 8401; Paines Hollow-Stonehouse, S.H. 1363; Little Falls-Mont. Co. Line, S.H. 831; SD Line and JR line	7.82 Thy. 2.24 Acc.	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide = 9.39 Mi. Asp. Conc. Ty. 1A, Opt. = 0.09 Mi. Fdtn. Crse. Grav. = 0.58 Mi. 5 Hy. Seps. Composite I-Beams 257', 153', 153', 177.5', and 177.5', 1 Hy. Sep. Composite Plate Girder 229'	$550,000 Plans $50	$9,877,000
DISTRICT No. 6 J. H. Thomas, District Engineer, 30 West Main Street, Hornell, New York						
Steuben	F.C. 53-1	City of Corning: Monkey Run Conduit (Flood Control)		15.5' x 10.5' Conc. Conduit	5% of Bid Plans $10	308,565
DISTRICT No. 8 J. S. Bixby, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Ulster	C.T. 53-7 C.T. 53-8P S.T. 53-16 R.C. 53-25	New York State Thruway-Catskill Section-Subdivision 3 (Whiteport-Kingston Pt. 1 & Pt. 2); Rte. 28 Interchange; Whiteport Town Rd. Relocation; Co. Rd. 94; Co. Rd. 50; Steward Lane Relocation; Kingston-West Hurley S.H. 5173	7.61 Thy. 1.66 Acc.	9" Cem. Conc. Pavt. 2 @ 25' Var. Wide = 8.07 Mi. Asp. Conc. Ty. 1A, Opt. = 0.67 Mi. Bit. Treat. Graded Grav. = 0.37 Mi. Misc. Work = 0.16 Mi. 6 Hy.-RR Seps. Composite I-Beams 338', 204', 213.4', 258', 127.6', & 245.5', 2 R.R. Seps. I-Beams 40.7', & 34.7', 1 Br. Composite I-Beam 311'	500,000 Plans $100	8,903,000
Westchester	SMRP 53-1P	Sawmill River Parkway (Mt. Kisco-Katonah Pt. 1)	3.05	9" Cem. Conc. Pavt. 2 @ 24' Wide	70,000 Plans $10	1,242,000
N. B. Contract Nos. H.T. 53-3A and H.T. 53-3B combined are for the same work as Contract No. HT. 53-3C. Bids may be submitted on either or both HT. 53-3A and H.T. 53-3B. If a bid is submitted on H.T. 53-3C the bidder must also submit separate bids on both H.T. 53-3A and H.T. 53-3B. Award will be made on the basis of responsible low bids resulting in the lowest total cost.						
Westchester	H.T. 53-3A	New York State Thruway-Hudson Section-Subdivision 9B Tappan Zee Bridge-Cont. A	0.96	E. and W. Approach Spans, Truss and Stringer Type on Existing Bents.	600,000 Plans $50	11,234,000
Westchester	H.T. 53-3B	New York State Thruway-Hudson Section-Subdivision 9B Tappan Zee Bridge-Cont. B	0.47	Steel Bents on Existing Conc. Fdtns. and Main Span a Cantilever Truss with Suspended Span	1,000,000 Plans $50	19,850,000
Westchester	H.T. 53-3C	New York State Thruway-Hudson Section-Subdivision 9B Tappan Zee Bridge-Cont. C	1.41	Combination of Cont. A and Cont. B	1,600,000 Plans $50	31,084,000
DISTRICT No. 9 F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton, New York						
Delaware	53-BWS 2, 8, 9, 9A, 9B	New York City Board of Water Supply Rds. 2, 8, 9, 9A and 9B (Pepacton Reservoir)	7.25	Bit. Mac. Ty. 1 (Pen. Method)	80,000 Plans $25	1,426,000
DISTRICT No. 10 J. J. Darcy, District Engineer, Montauk Highway, Babylon, L. I., New York						
Bronx	FANETC 53-1	New York State Thruway-New England Section-Contract 5A (Eastchester-Creek Bridge-Substructure) Proj. UI-1068(3)	0.49	Grading, Drainage, Misc. Work Bascule Br. Substruct. 527'	145,000 Plans $25	2,633,000
Suffolk	SMSP 53-1	Sunken Meadow Spur Parkway (Contract 5)	3.26 Pky. 1.84 Acc.	8" Cem. Conc. Pavt. 2 @ 25' Var. Wide = 3.01 Mi. 8" Cem. Conc. Pavt. (Widening) = 0.48 Mi. Misc. Work & Fencing = 1.61 Mi.	48,000 Plans $15	876,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: April 22, 1953

Rt. 29 (1927) Rt. U. S. 22 (1953), Section 7-F

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Route 29 (1927) Rt. U. S. 22 (1953), Section 7-F, Thompson Avenue Bridge and Approaches, Bridgewater Township, Somerset County, Federal Project No. UI-178(10)-Contract No. 2. Length 0.338 mile.

The principal items of construction are: Estimated:

Roadway Items

1,291 cu. yds.	Roadway Excavation-Unclassified
12,144 cu. yds.	Borrow Excavation
6,341 sq. yds.	Waterbound Macadam Base Course
1,100 tons	Pavement, Type MA-BC-2
568 lin. ft.	Rein. Concrete Culvert Pipe
7,157 lin. ft.	White Concrete Curbs

Bridge Items

1,369 cu. yds.	Concrete in Structures
53,210 lbs.	Reinforcement Steel in Structures
189,800 lbs.	Structural Steel

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Wednesday, April 22, 1953, at eleven o'clock (11:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Note: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 149 West Main Street, Somerville, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

(Continued on page 105)

OFFICIAL PROPOSALS

(Continued from page 104)

Bids: April 23, 1953

Construction of a Three Story Railroad Signal Tower Located at Plainfield, N. J., Under the Dunellen-Plainfield Grade Crossing Elimination, Order of the Public Utility Commission, State of New Jersey

Sealed proposals will be received by The Central Railroad Company of New Jersey, at the office of the Chief Engineer of the Railroad, located at the Jersey City Terminal, Room No. 44, Foot of Johnston Avenue, Jersey City, New Jersey, until 1:00 P.M. Eastern Standard Time, Thursday, April 23, 1953, and then publicly opened and read for the construction of a three story masonry and reinforced concrete railroad signal tower measuring approximately 17'-0" x 44'-0" in plan.

Proposal forms, drawings, specifications, bond and insurance requirements may be obtained at the office of the Chief Engineer of The Central Railroad Company of New Jersey, at the above address on or after March 30, 1953.

This work will be awarded as a general contract and the successful bidder will be required to perform with his own organization not less than 80% of the total value of the contract, except for materials or items of work which require specialized knowledge, craftsmanship or equipment not ordinarily available in the contractor's organization.

S. L. Mapes, Chief Engineer.
The Central Railroad Company of New Jersey
Jersey City Terminal, Jersey City 2, N. J.

Installation of Feeder Cables

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-130.012

Sealed proposals for the installation of feeder cables at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 3:00 P.M. on Tuesday, April 21, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $10.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, April 9, 1953

Bids: April 20, 1953

Construction & Installation of 2 Pumping Stations

Sealed Proposals will be received by The Mayor and Council of Easton, at their office in Easton, Maryland, no later than 8:00 o'clock P.M., Eastern Standard Time, Monday, April 20, 1953, for Construction and Installation of two (2) Pumping Stations, together with all necessary appurtenances, fixtures and fittings, for completing improvements to the Municipal Sewerage System in the Town of Easton, Maryland.

Form of Contract, Specifications and Plans and Blank Proposals may be obtained from the Town Clerk of Easton, Maryland, upon deposit of Ten (10) Dollars.

A Certified Check, Cash or Bid Bond in an amount of not less than five percentum (5%) of the amount of the base bid must accompany each bid.

The Mayor and Council of Easton, Maryland reserve the right to reject any or all bids, or sections of bids, as deemed to the best interests of the Town of Easton, Maryland.

W. H. CORKRAN, JR.
Town Engineer
M. EVELYN STARTT
Town Clerk

Bids: April 24, 1953

TOWN OF CORNWALL
ORANGE COUNTY, NEW YORK
RECREATION CENTER

Sealed bids or proposals will be received by the Town Board of the Town of Cornwall at the office of the Town Clerk until 8 P.M. (EST), April 24, 1953 for the construction of a 40' x 100' Swimming pool and bath-house at the Recreation Center.

Proposals will be publicly opened and read aloud at the said time and place.

All bids or proposals must be made upon the blank form furnished by the Town Clerk and in accordance with the Information for Bidders and the Specifications, copies of which may be secured at the office of the Town Clerk or at the office of Carpenter and Chumard, Consulting Engineers, 218 Wisner Avenue, Middletown, N. Y.

The Owner may request of the successful bidder a resume of the work, completed by him comparable to the construction shown on the plans and described in the specifications.

A deposit of $15.00 will be required for each set of Plans and Specifications distributed which amount will be refunded only to those submitting formal bids if said Plans and Specifications are returned in good condition within 30 days after the bids have been received and acted upon by the Town Board of the Town of Cornwall.

A certified check or bid bond for five percent (5%) of the total cost of the work, payable to the Supervisor of the Town of Cornwall, Orange County, N. Y. must accompany each bid.

The Town Board reserves the right to reject any or all bids or to waive any informalities in the bidding. No bid shall be withdrawn subsequent to the opening of bids without consent of the Town Board given within ten (10) days thereafter.

A corporation submitting a proposal must be one authorized to do business in the State of New York.

By Order of the Town Board of the
Town of Cornwall, Orange County, N. Y.
Edith B. Earl,
Town Clerk,
Cornwall, N. Y.
Dated: March 27, 1953

Bids: April 27, 1953

Greenwood Lake Village, Orange County, New York Filters, Pump, Building, Water Main and Intake

Sealed bids will be received by the Board of Trustees of the Village of Greenwood Lake, New York on the 27th day of April, 1953 until 7:30 P.M., Eastern Daylight Saving Time at the Village Office in the Fire Department Building for furnishing labor, materials and equipment and constructing a filter plant, pumping station, water main and intake, together with furnishing miscellaneous material and equipment for additional water supply from Greenwood Lake.

The work has been divided into the following sections. Contractors may bid on any or all sections.

Section I. The building and installation of filters, pumps, motors, chlorinating equipment and appurtenances, unloading and hauling same from Monroe, New York together with the furnishing and installing of all filter piping, valves, fittings and electrical work and equipment in the building with the exception of the immediate piping, fittings, valves and appurtenances and for a distance of ten feet outside of the outside walls of building and suction well with the exception of the 10 inch intake piping.

Section II. The furnishing of filter equipment, filter appurtenances, filter material and supplies as specified, supervision of installation, complete and ready for service.

Section III. The supply main, specials, valves and appurtenances together with the 10 inch intake main, screen and crib, all material, equipment and appurtenances to be furnished and installed.

Section IV. Furnishing the pumps, motors and appurtenances.

Section V. Furnishing the chlorinating equipment and appurtenances.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Office of the Village Clerk, Office of Mr. W. B. Phillips, Village of Greenwood Lake, New York. Copies thereof may be obtained at the office of Keis & Holroyd, or from the Village Clerk, upon payment of $25.00 for each set. Any bidder upon returning such set at the time of bidding and in good condition, will be refunded his payment, and any non-bidder upon so returning such set within 30 days of the date for receiving bids, will be refunded $20.00.

The Board of Trustees of the Village of Greenwood Lake, New York reserves the right to waive any informalities in or to reject any or all bids. Award of contract or contracts is dependent upon action of the New York State Water Power and Control Commission.

A certified check made payable to the order of the Village of Greenwood Lake, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Village of Greenwood Lake, New York, in the amount of the contract and having as surety thereon, such surety company or companies as are acceptable to the Village of Greenwood Lake, New York.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for opening of bids or authorized postponement thereof.

JOHN G. SCHLEICH, MAYOR
Keis & Holroyd
Consulting Engineers
Troy, New York

Bids: April 24, 1953

Bronze Cleaning and Maintenance Work

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
CONTRACT O & M 176
PROPOSAL NO. 72

Sealed proposals for furnishing all labor, material and equipment for cleaning, refinishing and maintaining interior bronze-main lobbies, entrance doors to Room 715 and bulletin boards in the Port Authority Building, 111-8th Ave., New York 11, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. Friday, April 24, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: April 21, 1953

Demolition of Houses

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-140.017

Sealed proposals for the demolition of houses at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y. until 2:45 P.M. on Tuesday, April 21, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $10.00 per sent. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

(Continued on page 107)

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.50 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS: Address New York City Office, 330 W. 42nd St., N. Y. 36, for April 23rd issue closing April 13th

---

ENGINEERS

Openings with excellent opportunities for recent graduates and qualified personnel in the following categories: Mechanical, Chemical, Industrial and General.

These positions offer excellent working conditions with paid vacations, sick leave and a participating group insurance program.

All replies confidential.

Submit complete resume stating experience, education and salary required, to Personnel Department.

SILAS MASON COMPANY

BOX 561 BURLINGTON, IOWA

Cessna

ENGINEERS

WANTED

recent graduates from engineering colleges needed in structures section for testing and stress analysis assignments

SEND RESUME TO

CESSNA AIRCRAFT CO.

ATT'N. PERSONNEL
WICHITA, KANSAS

Help Wanted

ENGINE REBUILDING SHOP MANAGER

Take charge gasoline and diesel rebuilding department, handle inside-outside service. Supervisional background necessary with operating knowledge of all precision engine reconditioning machinery. Must be top engine man able to recruit, train and direct 20 men, turn out quality work at a profit. Location Eastern Penna. Earnings and advancement will be attractive to a high type supervisor capable of taking full responsibility. Answers to include age, training, background of experience, when available and home phone number. P-7306, Engineering News-Record, 330 West 42nd St., N. Y. 36, N. Y.

DRAFTSMAN

Want top rate detailer and checker on welded truss and rigid frame steel construction. Permanent position and top rate salary to experienced man.

KILROY STRUCTURAL STEEL CO.
8500 Union Ave. Cleveland 5, Ohio

SOILS ENGINEER

For Ohio Turnpike Project in Sandusky Area. Qualified, graduate, emphasis field soils and materials laboratory supervision experience, compaction and field density procedures. By eminent consulting engineers. Salary open. Submit resumé.

Box 265 Milan, Ohio

STRUCTURAL ENGINEERS
SENIOR ARCHITECTURAL DRAFTSMEN
MECHANICAL ENGINEERS
SANITARY ENGINEERS

We have several openings for men experienced in general building design.

Good working conditions—Overtime after 40 hours per week.

Give complete details of experience in first letter.

BELLMAN, GILLETT & RICHARDS
Architects and Engineers
518 Jefferson Avenue Toledo, 4, Ohio

ESTIMATOR

Wanted by Phila. firm for large sewers, bridges, treatment plants. Must have had experience with contractors in similar wark. State salary, experience and when available.

P-7430, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

STRUCTURAL ENGINEER

With 10 to 15 Years Experience in Reinforced Concrete and Structural Steel Design for Electric Utility Work, *Write to* Structural Engineer

PENNSYLVANIA POWER & LIGHT CO.
Allentown, Pa.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED: ENGINEERS experienced in waste works. Sewers, Paving, Building for design and supervision of construction. Advise education, experience, salary requirements and when available. P-7314, Engineering News-Record.

BRIDGE DESIGNERS Wanted. Permanent location—38 hour week. Reply stating experience, education, age. Wyoming Highway Department, Cheyenne, Wyoming.

PRODUCTION MANAGER:—Steel Fabricator of structural, reinforcing and miscellaneous iron for the construction industry. At present processing 3000 tons per month. Need energetic man with rich experience background. Splendid opportunity for future development. Position now open due to retirement and unexpected serious illness. Age range 35 to 45 years. Location southwest. P-7396, Engineering News-Record.

SALES EXECUTIVE—Manufacturer of steel joists, deck and culvert pipe; steel fabricator of structural, reinforcing and miscellaneous iron; warehousing of related steel specialties. Operation 9 southwestern states; present volume 3000 tons monthly. Position requires promotion of products to architects and engineers, and selling to contractors and owners. Prefer man 35 to 45 years. Excellent opportunity for experienced producer. P-7357, Engineering News-Record.

ENGINEERS, WATER & sewerage work. Openings in New York City and Metropolitan New Jersey, for men with experience in drafting, design or resident supervision. Please state full qualifications, experience and references. Elson T. Killam, 529 Millburn Ave., Short Hills, New Jersey.

CONCRETE AND Formwork Superintendent to assume full charge concrete and formwork operations, including foundation work, on multi-story fireproof steel frame structure. About a 10 month operation. Located in central New York. Ready to start in about 45 days. Will pay exceptionally high salary and expenses, plus bonus on savings below estimated cost to a man of proven ability and experience. Reply in confidence in full detail. P-7373, Engineering News-Record.

HIGHLY QUALIFIED appraisal engineer with ample and intensive experience on public utilities, etc.; also strong attractive personality; ability to handle discussions with bankers and to conduct negotiations with clients of a large engineering company. P-7044, Engineering News-Record.

(Continued on the opposite page)

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE

All instructions by mail. Send today for sample lesson and complete details

Geo. E. Deatherage & Son, Dept. 101
411 S. 5th Ave. Lake Worth, Florida

(Continued from page 105)

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3926) will be received at Yuma, Arizona, until 10 a.m., May 5, 1953, for furnishing labor and materials for Water Users' Administration Building, Wellton-Mohawk Division, Lower Colorado River District, Gila Project, Arizona. Location: Approximately 1½ miles east of Wellton, Arizona. Principal items are: Lump sum for construction of 69 by 131 foot, one-story building complete with necessary heating, lighting, and plumbing installations. Exterior walls will be concrete blocks below the finished grade and pumice blocks above finished grade. The roof will be framed with structural steel and wood joists over which will be placed wood sheathing and 4-ply asphalt felt roofing; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Yuma, Arizona; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3925) will be received at Huron, South Dakota, until April 30, 1953, for furnishing labor and materials for Rapid City Substation, Transmission Division, South Dakota, Missouri River Basin Project. Location: ½ mile east of Rapid City, South Dakota. Principal items are: Excavation, 6,000 cu. yds.; furnishing and placing reinforcement bars, 28,000 lbs.; erecting steel structures, 35,000 lbs.; furnishing and erecting steel structures, 35,000 lbs.; furnishing and installing conduit, 10,000 lin. ft.; installing synchronous condenser, lump sum; constructing service building, lump sum; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

OFFICIAL PROPOSALS

Bids: April 13, 1953

Concrete Foundations

Sealed bids for furnishing and constructing concrete foundations for an elevated steel water tank to be used in connection with the municipal water supply system of the Village of Greenport, Long Island, New York, will be received by the Village Clerk at the Village Office until 7.30 o'clock PM, on April 13, 1953 and then at said office will be publicly opened and read.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Forms of Bid Bond and Performance Bond are on file at the Village office and at the office of Harry Barker, Consulting Engineer, 11 Park Place, New York, 7, N. Y., and may be examined at said offices and copies thereof obtained upon payment of $15.00 for each set. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder applicant upon so returning such a set will be refunded $10.00.

The Village Board reserves the right to waive any informalities in, or to reject any or all bids, or to accept any bid which in its opinion will be to the best interests of said Village. Each bidder must deposit with his bid security in the amount of $1,000.00 in the form and subject to the conditions provided in the information for bidders. The work covers excavation for, and placing of, about 115 cu. yd. of mass and reinforced concrete. Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract. No bidder may withdraw his bid within 30 days after the actual date of the opening thereof.

By direction of the Board of Trustees.
Otis M. Burt, Mayor
Greenport, N. Y.
March 28, 1953

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-third year. Write today.*
WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

ENGINEERS

Structural, mechanical, and electrical for work on hydro-electric power developments. Write giving full experience record and qualifications.

HARZA ENGINEERING COMPANY
400 West Madison Street Chicago, Illinois

STRUCTURAL DESIGNER

Good opportunity for qualified man. Must be experienced in design of steel and concrete frame industrial buildings.
Liberal salary based on ability and experience.
Opportunity for advancement.
Excellent pension, vacation, and other benefits for permanent employee.
Location: San Francisco, California.

P-7380, Engineering News-Record
68 Post St., San Francisco 4, Calif.

POSITIONS VACANT

(Continued from opposite page)

DRAFTSMEN, DETAILERS and Checkers. Experienced in structural steel on all types of structures including bridges. Excellent opportunity; fast growing Engineering organization. Salary open depending upon experience. Good Working conditions, annual bonus. Send complete information, replies confidential. Samborn, Steketee & Associates, 1214 Cherry Street, Toledo 4, Ohio.

ESTIMATOR WITH proven record on industrial commercial and institutional bldgs. as head of dept. for Western Penna. contractor doing approx. 8 million annually. Give age, detailed record, references and salary expected. Write care P. O. Box 429, Grove City, Pa.

WANTED: TRAFFIC Engineer. Salary Range $550 to $650 a month. Depending upon training and experience beginning salary may be above the minimum. Applicants must be registered professional engineers. Annual increases are automatic. Applicants will be accepted until the needs of the service are filled. Write Personnel Division, City Hall, Madison 3, Wis.

COMPUTOR, DRAFTSMAN and general office man, experience in Subdivision and property surveys for and 88 year old firm. Joyce Company, 802 Chestnut St., St. Louis, Mo.

WANTED FIELD Engineer to layout lines and grades for excavation and construction projects; also look after operations of equipment. Phone Long Island, N. Y. Hempstead 7-6262.

CONSTRUCTION EXECUTIVE: Must be capable of handling all phases of construction. Complete management of projects and concomitant office detail. Large established firm between District of Columbia and Maryland. Forward complete resume and state salary desired. Replies held in strict confidence. Write P-7431, Engineering News-Record.

RESIDENT ENGINEER experienced in rock tunnelling and large water lines. Please give experience record, references and salary requirement in first letter. P-7432, Engineering News-Record.

BUILDING ESTIMATOR, C.E. deg., permanent position in N.H. Salary commensurate with ability and experience. Advise qualifications, education, past employment and salary expected. Write P-7317, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

SALESMAN WANTED—Rent and sell heavy duty construction equipment — Cranes, air compressors, etc. RW-7417, Engineering News-Record.

SALESMAN WANTED—Steel specialties promotion and selling doors, windows, joists, deck and related items for commercial and residential construction. Qualifications desired: Graduate in architecture or engineering; age 28 to 35 years; good mixer and energetic. SW-7398, Engineering News-Record.

POSITIONS WANTED

CIVIL ENGINEER, 28, Swedish graduate, five years' design, construction and business experience South America. Excellent English, Spanish, Swedish, good German, Danish, some Portuguese and French. Seeking employment involving both engineering and business. Available July. Airmail Apartado 4394, Este Caracas, Venezuela.

ADAPTABLE, TACTFUL, Civil Engr. grad., 4 yrs. Illinois and Pa. with present employer. Conn. location imperative. Technical concrete background. Desires connection with contracting or engineering firm leading to responsibility. PW-7482, Engineering News-Record.

AVAILABLE

General Superintendent or Project Manager—long successful record in direct charge of major construction projects. Will accept either domestic or foreign assignment. Knowledge of French, German & Spanish. Experience covers Waterfront, Building, Highway, & Bridge Construction, Sewage and Water Treatment Plants, Power Plants.

PW-6703, Engineering News-Record
330 West 42nd St., New York 36, N. Y.

POSITIONS WANTED

CIVIL ENGINEER, M.S. 6 yrs. of structural design and soils testing, desires responsible position. PW-7478, Engineering News-Record.

REGISTERED ARCHITECT—Experienced on power, water, industrial & Municipal projects. Also general practice. University graduate—45—Married—registered several states. Wish permanent location smaller city. PW-7273, Engineering News-Record.

DISTRICT REPRESENTATIVE for heavy construction, mining, and industrial equipment manufacturer desires distributor connection in sales management or other administrative position. College graduate, factory trained, extensive field experience. Age 32. Married. Replies confidential. PW-7394, Engineering News-Record.

C.E. GRADUATE, 3 yrs. structural experience but also interested in other fields, desires responsible office, field or research position in Washington, D. C., area. PW-7371, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and Engineer desires work in New England. Experienced industrial plants, housing, heavy construction, bridge and marine work, skilled estimator. PW-7361, Engineering News-Record.

B.S. IN Civil Engr. Age 33. Exper. in construction supervision & inspection, bridge design, soil tests, prefer south-west or midwest. PW-7428, Engineering News-Record.

ESTIMATOR—PURCHASING Agent for general contractor, 14 years experience in both field and office, commercial and industrial buildings, prefer midwest location. PW-7422, Engineering News-Record.

CIVIL-HYDRAULIC Engineer—Masters degree—Four years experience teaching and in consulting office. West coast preferred. PW-7444, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT—15 years experience on layout and supervision of industrial and commercial construction desires work in eastern U. S. Age 35. Best references. Available immediately. PW-7470, Engineering News-Record.

EARTHWORKS SUPERINTENDENT — Railroad embankments, dams, airports, highways asphalt, soil cement, all types of excavation and earthworks construction. Planning, scheduling, organization of efficient operation. A driving superintendent to make men and machinery go. Completely familiar with Latin American construction. Fluent Spanish. Desire Latin American assignment. Excellent record and references. PW-7462, Engineering News-Record.

I'M READY to go any place or distance as Supt. in Blasting Construction, Tunnels, Roads, sewers, etc. 30 years experience. Salary accepted $200. A.B. 1220, 827 Morris Park, Bronx, N. Y. Tel. TA. 2-7000.

RESIDENT ENGINEER Asst. Res. Engineer Construction Supt. Airports, Buildings. All types heavy construction. 10 years foreign experience. Desire position local or foreign. Best of references. PW-7460, Engineering News-Record.

PARTY CHIEF, thoroughly experienced, lines grades, property, mapping. Warm climate preferred. Foreign or domestic. PW-7469, Engineering News-Record.

SELLING OPPORTUNITIES WANTED

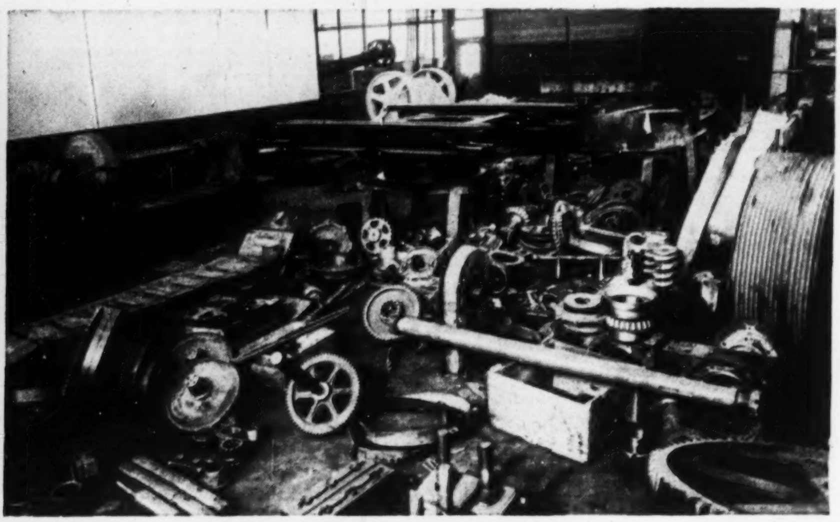
MANUFACTURERS' REPRESENTATIVE—desires additional accounts—Construction Engineer background—Location: California, Arizona, New Mexico. Building materials—Will not warehouse. RA-7372, Engineering News-Record.

WORK WANTED

Equipment Design, Plant Layout, Materials Handling Methods & Cost Analyses. WW-7424, Engineering News-Record.

BEFORE

L. B. SMITH starts rebuilding used equipment, it is necessary to *completely* dismantle it as was the case illustrated here. Skilled workers, manning the latest and most modern machines, using standard bushings, standard shafts, standard factory parts, perform our rebuilding jobs with doc*tor like thoroughness!*

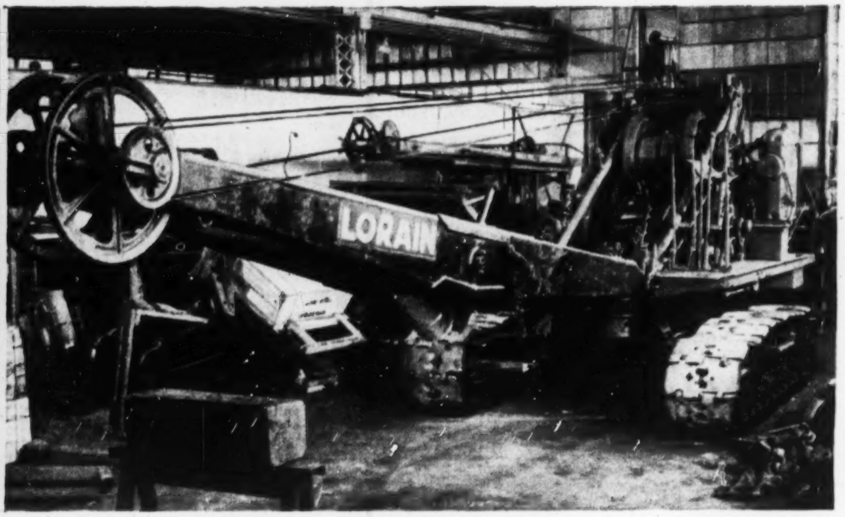


THE REBUILDING JOB WE DID HERE...

can be done on your equipment, too!!!

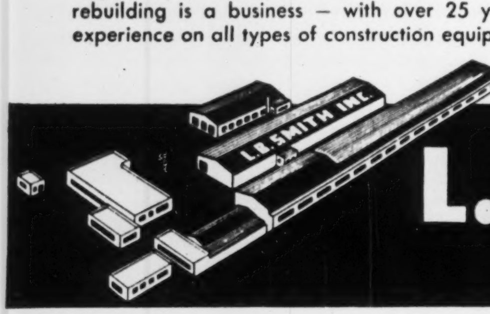
AFTER

L. B. SMITH rebuilds equipment, it is ready for many years of further use. Wherever possible, new design is incorporated into the rebuilt machine, increasing the productive capacity. And, since under and oversizing shafts, bearings, etc. is frowned upon, no trouble is experienced in future maintenance.



Your Equipment???

Have you equipment we can rebuild?
You are invited to use our facilities — the world's largest equipment rebuilding facilities . . . where rebuilding is a business — with over 25 years of experience on all types of construction equipment — where trained mechanics with precision tools — can build back into your equipment many years of additional and efficient usefulness — using the same thoroughness employed in rebuilding our own used equipment. Write today


L.B. SMITH INC.
L.B. SMITH INC.

L. B. SMITH INC.

CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 12

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 500 cu. ft. diesel, good operating condition.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2036 Cedarapids AAA primary unit on rubber, diesel power. Rebuilt.
1036/2418 Cedarapids Jr. Tandem unit on rubber.
Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill. New.
1236 Cedarapids Model 6C plant. New.
4033 Cedarapids Model 6C plant. New.
2020 Cedarapids double impeller. New condition.
4024 Cedarapids roll. Rebuilt.
3018 Cedarapids roll. Rebuilt.
1236 Cedarapids twin jaw crusher. New.
1036 Cedarapids jaw. Rebuilt.
10x7 Allis Chalmers lake type jaw crusher. Rebuilt.
B-3 Jeffrey swing hammer pulverizer. Rebuilt.
3' x 6' Kennedy Van Saun triple deck screen.
60" dia. x 14' long Traylor revolving screen. Rebuilt.
36" Wemco single pitch sand screw. New condition.
15 cu. yd. Cedarapids sand drag. New.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8' x 18' storage bin w/clam gates.
100-ton, 2 compartment, 13'x23' storage bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.
24" Dia. x 36" face magnetic pulley.

TRUCKS—TRAILERS

27FD Euclid rear dumps.
1½-ton Ford with any body.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Lorain L-82, 2-yd. diesel.
Lorain 77, 1½-yd. diesel.
Lorain 75B, 1¼-yd. diesel.
Lorain L-50-I, 1-yd. diesel.
Lorain 40 truck crane on Mack 3-axle truck.
Link Belt LS85 diesel combination.
Unit 514, ½-yd. gasoline crawler shovel, rebuilt.
Lorain 30A, ½-yd. gas combination.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.
Lorain 77 crane boom, 45'.

BACKHOE BUCKETS & ATTACHMENTS

Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105. 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

1—45" Ohio lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944 rebuilt.
Corr formgrader, new 1944, rebuilt.

TRUCK MIXERS

3-yd. Challenge high discharge mixer on International chassis.

TRACTORS

TD-24 International with Bucyrus-Erie angleblade.
TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

Barber-Greene 44C Trenching machine 18" to 24" cutting width, 7' depth.

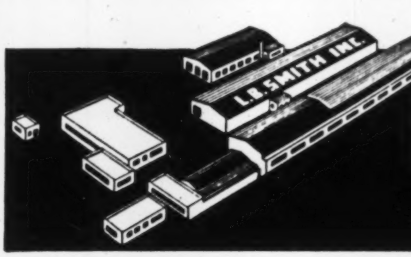
PUMPS

New Layne Bowler type 18 deep well pump with right angle gear drive. 3000 GPM at 120' TDH.
Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

GASOLINE AND DIESEL ENGINES

Caterpillar D-13000, rebuilt.
Murphy ME-6, & ME-46, rebuilt.
Caterpillar D8800.

***Phone* HARRISBURG, PA. 7-3431**


L. B. SMITH INC.
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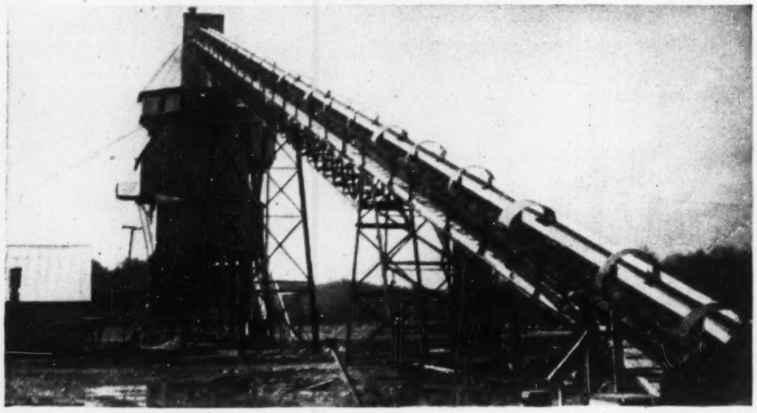
CAMP HILL, SUBURB OF HARRISBURG, PA.

FOR SALE . . .



C. S. Johnson Concrete Plant,

Completely Automatic, consisting of 3-3 cu.yd. Koehring Tilting Mixers, six compartment bin, 500 tons aggregate, 500 bbl cement storage tank, 2700 bbl cement silo, 2 I.R. Pre-2, 20x12x14 Air Compressors, York Corp. Refrigeration System, 1 Cat. D-397, 1 Cat. D-386 Generator Sets with switch boards.

Write phone or telegraph Mr. R. C. Hutchinson,
Ashland City, Tenn. Phone No. 211.

STEVEN BROS. & THE MILLER-HUTCHINSON CO., INC. AND
T. L. JAMES & CO., INC. JOINT CONTRACTORS
CHEATHAM LOCK ASHLAND CITY, TENNESSEE

IN ADDITION TO ABOVE PLANT WE ALSO HAVE FOR SALE

Concrete buckets, I.R. Wagon Drills, miscellaneous air tools, pumps, dump trucks and 1 D-6 Caterpillar Bulldozer.

FOR SALE

1—Lorain Mdl. L50J Lifting Crane with 60′ boom, pendant suspension, 15′0 jib with Caterpillar D-318 diesel engine. Machine 2 years old. Very good condition. RSP-194 (B)

SALE PRICE F.O.B. PADUCAH, KY.
$14,000.00

1—Lorain Mdl. #77 Shovel w/2 cu. yd. Amsco Bucket. Caterpillar diesel engine. $3800.00 in repairs since use. S-2184 (B)

SALE PRICE F.O.B. LOUISVILLE, KY.
$13,900.00

1—International Mdl. TD-24 Crawler Tractor with Bucyrus-Erie P-28 double drum power control unit. S-2235 (C)

SALE PRICE F.O.B. LOUISVILLE, KY.
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SYMBOLS

A—Almost new or rebuilt & guaranteed
B—Reconditioned—good running order
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MIDDLESBORO PADUCAH
BRANDEIS MACHINERY
& SUPPLY COMPANY
LOUISVILLE Since 1908 KENTUCKY

EQUIPMENT FOR SALE

1—D8 Tractor with Bulldozer, new 1949, completely overhauled
1—D4 Tractor with Hydraulic Dozer—electric and/or diesel
1—Austin-Western Motor Grader
1—Oliver, Model 80, Rubber Tired Tractor
1—Model C Scoopmobile with 1 yard bucket
1—60 K.W. Diesel Generators
3—500 c.f.m. Ingersoll-Rand Portable Compressors
1—No. 2½ Kent 2 Hopper Mortar Mixer
1—Cement Gun, Size N-2, with Worthington Pump and necessary hose, nozzles, etc.
2—Single Drum, 40 H.P. Clyde Electric Hoists
50—1½ yard Blaw-Knox, R-46, Concrete Buckets

Subject to prior sale

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Box 153 Grahamsville, New York
Grahamsville 2861

FOR SALE
CONTRACTOR SELLING OUT ALL EQUIPMENT

Koehring Shovel 1½ Yd. Cat Diesel New 1951	$35,000.00
Marion Shovel ¾ Yard Crane & Backhoe G. M. Diesel extra large tracks new 1948	$17,000.00
Lorain Shovel ¾ Yd. and Backhoe Cat Diesel new 1950	$17,000.00
Unit ½ Yard Crane new 1951	$7,000.00
2—Unit ½ Yard Backhoes, Diesel	$8,500.00
H. D. 20 with Pusher block 17 Yard La Plante Choate wagon, Used 400 hrs.	$28,000.00
H. D. 19, new motor, new tracks, angleblade	$10,000.00
3 Garwood Carryalls 11 Yards	$3,500.00
H. D. 9 Angleblade. Used 4 months	$9,000.00
5 H. D. 14 Bulldozers with blades	$3,500.00 to $6,500.00
Cat D. 6 Angleblade new 1951	$7,500.00
Grader Cat #12. Like new	$7,500.00
3 Terra Corbras, new motors. 80 pct. rubber.	$6,500.00

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Also Trucks—Concrete Mixer—Fordson Tractor
Contractor Disposing Surplus Equipment

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Capacity 6 x 6 x ¾ angles. Good condition.

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SCHRAMM AIR COMPRESSORS
60, 105, 210, 315, 600 cu. ft. Gas. and Diesel
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1 KW-30KW, A.C. & D.C., Gas. and Diesel
DIESEL MOTORS COMPANY
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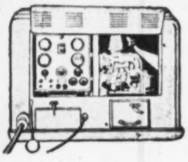
LIGHT PLANTS



New Hobart Signal Corps Power unit PE197. 110-220 volt 60 cycle A. C. single phase 5 K.W. 4 cyl. Hercules 20 H.P. water cooled engine. Remote control push button start. Complete panel board with instruments. Housed in metal case.

Price complete $745

Prices F.O.B. Chicago. Money Back Guarantee. Send check or money order today. *Write for Free Catalog* of light plants, generators and home work shop equipment. Send 10¢ for mailing and handling.

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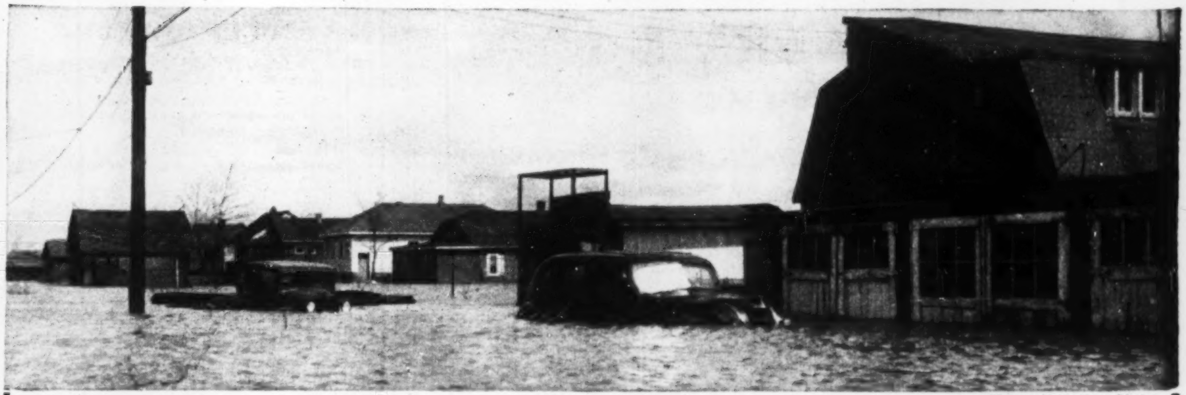
FOR SALE
Three REX HiDischarge 3 cu. yd. Mixers

Each mounted on a Mack EQX Chassis.
All in excellent condition.

JOHN M. ROBERTSON Inc.
59 Ceperley Ave. *Tel. 1484* Oneonta, N. Y.



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PUMPS, CENTRIF., GASOLINE

1—8" Gorman Rupp, Mdl. H18, Hercules Mdl. JXB gas eng., 125,000 GPH @ 25' hd.
2—6" CMC, Hercules gas eng., Mdl. QXC-5, cap. 90,000 GPH @ 25' hd.
1—4" Rex #50M, 4 cyl. Wauk. gas eng., 750 GPM @ 25' hd.

PUMPS, CENRTRIF., ELECTRIC

1—12" Dayton Dowd, vert., 50 HP 3/60/220/440, cap. 6,000 GPM @ 19'; 4250 GPM @ 32'.
1—8" Ing. Rand size 8LFV, 50 HP 220/440/3/60, cap. 2,000 GPM @ 80' hd.
1—4" suc., 3" disch., Weinman, 7½ HP 3/60/220/440. Cap. 420 GPM @ 40'.

PUMPS, JETTING, GASOLINE

1—4" Hanlon Waters centrif., 8 cyl. Chrysler eng. 100 HP, 600 GPM @ 270', 350 GPM @ 463', or 200#. Wt. 3800#.

PUMPS, ROAD

1—3" CH&E #11 Triplex, 4800 GPH @ 1155', 125 GPM @ 300#. Waukesha 4 cyl. eng. Wt. 4000#.

AIR COMPRESSORS

Portable, 2-Stage
WE HAVE A LARGE STOCK OF AIR COMPRESSORS, FROM 60 TO 500 CU. FT., DIESEL AND GAS POWERED.

BOILERS

1—75 HP Indus. Brownhoist Crane Boiler, 150#, 60" dia. Nat'l. Board, for coal firing.
1—70 HP Johnson vertical, fits Mdl. F Ohio loco. crane, 60" dia., 150#, Nat'l. Board for coal or oil firing.
1—65 HP Union Iron Works vertical boiler, 60" dia., 160#, Nat'l. Board 2½" tubes, fits Mdl. F. OHIO loco. crane, for coal or oil firing.

CRANES, LOCOMOTIVE

1—30 ton Mdl. F OHIO, 50' boom, oil fired, Nat'l. Board 200# boiler.
1—25 ton Industrial Brownhoist Type G, 40-50-60' boom, Nat'l. Board 150# boiler.

DERRICKS

1—30 ton Wiley Mdl. F Steel Stiffleg, 60-80-100' boom, rated 30 ton @ 38', 15 ton @ 57'.
1—10 ton Stiffleg Derrick with 76' boom, 25' mast, 12' bullwheel.

GENERATORS—LIGHT PLANTS

1—31.25 KVA 25 KW Westinghouse 208/120/3/60 direct connected LeRoi 71.5 HP gas eng. Wt. 4500#.
1—7½ KW DC 220 volt Engberg steam driven generator.
1—75 KW Diesel Generator, 220/440/60/3, Cat. D-13000 Diesel eng., gas starting eng., control panels. Generator completely rewound. LATE MODEL. SAVE THOUSANDS OF $$$$ FROM COST NEW PRICE. EXCELLENT SHAPE.

HOISTS, ELECTRIC

1—100 HP American 3/drum #1888M, 3/60/440, 9,000# @ 275 FPM, attached Lidgerwood swinger.
2—Mdl. 75 3/drum American, 75 HP Fairbanks Morse 3/60/220/440 motor, 7,500# line pull at 280 FPM. Late Model, LIKE NEW.
3—60 HP Thomas 2/drum, attached swinger, 2 powered by 60 HP GE slipring motor, 220/440/60/3, one w/o power. 7,000# line pull @ 195 FPM.
1—50 HP Mundy 2/drum #15691, w/National 2-spool attached swinger, 3/60/440. 7,000# @ 195 FPM. Wt. 12,000#.
1—40 HP National 1/drum 2/60/220. 3500# @ 350 FPM. Wt. 7000#.

WE HAVE A LARGE STOCK OF ELECTRIC, GAS & STEAM HOISTS.

PNEUMATIC TOOLS

We have a Large Stock of PNEUMATIC TOOLS for Rental or Sale, such as Clay Spades, Chippers, Drills, Demolition Tools, Grinders, Hammers, Rivet Busters, Rock Drills, Tampers, Vibrators, Wagon Drills, etc.

THIS MONTH'S SPECIALS

CRAWLER CRANES

1—¾ yd. - Mdl. 375 American Combination Crawler Crane and Shovel, Ser. GS-419. Crane boom 40'. Shovel attachment with ¾ yd. dipper. Power Cat. D4600 Diesel engine. An excel. buy.
1—#3 Northwest Crane, Ser. 4603, with 40' boom, Wisconsin gas eng.
1—½ yd. Insley Mdl. K-12 Magnet Crane, Ser. 1805, 35' boom, Chrysler Industrial eng., 5 KW Kohler generator set and 36" EC&M magnet.
1—¾ yd. mdl. 255-A P&H crane, Ser. 5750, power 6 cyl. Waukesha gas eng., 35' boom. Completely rebuilt.
1—Mdl. 501 Koehring, No. 1071, 60-70-80' boom, 18' jib, Mdl. K Wisc. gas eng. Cap. 40,000# @ 12'. Shpg. wt. 97,200#.
1—1¼ yd. Bucyrus Erie Mdl. 33-B, Ser. 16502, 8 cyl. "V" type LeRoi gas eng. (eng. new 1948). 50' boom.
1—1½ yd. P&H 655A Diesel Crane or Dragline, Ser. 6428, 75' boom, 20' jib, Cat. D-13000 Diesel eng., hi gantry. Wt. 82,900#. Rental only.
1—1¾ yd. Link Belt Mdl. 370 Diesel Crane or Dragline, 90' boom, hi gantry, Cat. D-13000 Diesel eng., long & wide pads. Rental only.
1—2½ yd. P&H Mdl. 955-LC, Ser. 5309, Cat. D-17000 Diesel eng., 100' boom 1½ KW light plant, tagline. Operate either from cab or remote control 32' hi tower. Ideal for coal dock, levee or similar work. Excel. condition.

All this equipment is owned by us and may be inspected at one of our show rooms.

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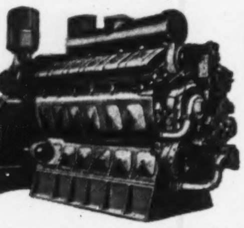
WOrth 2-0036

DIESEL POWER



IMMEDIATE SHIPMENT
• PURCHASE OR RENTAL
UNIT CAPACITIES—10 TO 2475 KVA
A.C.—50 AND 60 CYCLES
• ALSO D.C. UNITS

A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1980	Nordberg	TS-217	2800	225	320	Enterprise	DSG-6	560	450
1500	Fairbanks Morse	33E16	2000	300	300	General Motors	8-268A	450	1200
1136	Fairbanks Morse	38D	1600	720	250	Fairbanks Morse	37-E	375	360
1100	General Motors	16-278A	1600	720	200	General Motors	8-268A	350	900
750	General Motors	12-567	1080	720	150	Worthington	CC-4	225	450
500	Baldwin	VO-8	750	514	150	Buckeye	80	240	600
500	General Motors	8-278A	750	720	100	Worthington	BB-5	150	600
500	General Motors	8-567	720	720	100	General Motors	3-268A	150	1200
400	Ingersoll-Rand	8-8	600	720	60	General Motors	6-71	90	1200
350	Baldwin	VO-6	510	450	30	Internat'l Harvester	UD-14	45	1200

A. G. SCHOONMAKER COMPANY, INC.
ENGINE DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

PRICED TO SELL

Nine Concrete Truck Mixers completely reconditioned and in excellent condition.

#28, one 1944 Brockway truck, Model 152W mounted with 4 c.y. Rex horizontal mixer.

#38, one 1952 Brockway truck, Model 152W mounted with 4 c.y. Rex horizontal mixer.

#31—#32—#34, three 1940 Brockway trucks, Model T.M. Spec. each mounted with 4 c.y. Rex horizontal mixers.

#4 — #6 — #12 — #16, four Brockway trucks, Model T.M. Spec. each mounted with a 3½ cu.yd. Rex horizontal mixer.

All equipment is currently in operation and can be seen at our plant. You can buy these nine truck mixers for about what two new units would cost you.

HOWAT CONCRETE COMPANY, Inc.
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FOR SALE OR RENT

2—Northwest Model 25—1951—Backhoes & Cranes
5—Northwest Model 25—1950—Backhoes
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1—Lima Model 34—1951—Backhoe

All machines completely re-conditioned and in A-1 operating condition . . . Prices and serial numbers furnished upon request.

FOR RENT

2—Bay City 25-Ton Cranemobiles—1951 & 1952
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1—Northwest 1-½ c.y. Shovel or Crane—1952
½ and ¾ c.y. Backhoes or Cranes—Crawler or rubber-mounted—all late models
Bulldozers—5 to 20 Tons
Scrapers—12 to 24 c.y.
3—Hough Model HMD—1½ c.y. Payloaders

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NEW AND REBUILT
STORAGE BATTERY

LOCOMOTIVES

1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

WANTED

(Additional Wanted Ads on page 114)

WANTED

20 or 25 Ton Truck Crane
30 Ton Diesel Locomotive Crane
45 Ton Diesel Electric Locomotive

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For Rental Or Purchase
10,000 LF 9" ROAD FORMS;
FINE GRADER; Concrete
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5-Ton Roller. All in A-1 Condition.

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LOCOMOTIVES

1—Plymouth—8 Ton 30" Ga.—Gas.
1—Brookville 10T-30" Ga. Diesel—Like New.
1—Vulcan 14 Ton—30" Ga., Diesel.
3—Whitcomb—15 Ton—36" Ga.—Diesel.
2—Plymouth 8 Ton Gas. Std. Ga.
2—Brookville 14 Ton Diesel Std. Ga.
1—Whitcomb 30 Ton Std. Ga. Diesel.
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3—G.E. 100 Ton Diesels

3—HOPPER CARS—50 TON.
EXCELLENT. STD. GA.

2—Conway Mod. 75 Muckers. #256 & 305. Bargains.
Southwark 500 Ton Hydraulic Press—High Speed—Like New.
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Pile Driving Equipment

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
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Steel Sheet Piling

CONTRACTORS MACHINERY Co.
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FOR SALE

Model 4500 Manitowoc Draglines, caterpillar-mounted, with 140 booms', buckets, Caterpillar engines, 5 cu. yd. 100-ton capacity, one and two years old.

Model 3500 Manitowoc Speedcrane, Liftcrane, clamshell, dragline combination, 2½ cu. yd. 60-ton capacity, new October, 1950.

Model 803 Koehring Liftcrane, Clamshell, Dragline combination, 2 cu. yd. 50-ton capacity.

All located in Florida. Reply to

FS-5844, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Locomotive Cranes
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41-B, 50-B, 30-B, DE
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Locomotives
Railroad Cars
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Dredges, Hydraulic
Boilers
Generators
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Tugs & Boats
Derricks
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STONE THE CRANE MAN
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FOR SALE OR RENT

Rebuilt and in A1 Condition

Cat. D7 Bulldozer #4T5988
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FOR SALE ONLY

1 New Shovel Front for Model 6 Northwest
1 Slightly Used Shovel Front for Model 25 Northwest

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COMPLETE CONCRETE PLANT

This plant purchased new June 1951 at $91,000.00

1—C.S. Johnson 1032 bbl. cement silo
1—C.S. Johnson 2700 bbl. cement silo
1—C.S. Johnson bulk cement conveyor and bucket elevator
1—300 yard bin and batcher outfit
11—C.S. Johnson tunnel gates
2—56S Kohring 2 yard tilting mixers
1—300' inclined conveyor, steel trusses, timber supports, 30" width conveyor belt and 40 h.p. electric motor. Bin and Batcher outfit electric operated.

Priced for quick sale

MACHINERY & SUPPLIES CO., INC.
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Used EUCLIDS for Sale

13-Yard Bottom Dump
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Attractive prices

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Telephone—Atlantic 3127

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WORLD'S LARGEST STOCK
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PRICED BELOW REGULAR MILL PRICES

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100,000'— ¾" 6x19 HC Plow & Impro. Plow
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40,000'—1" 6x19 HC Plow & Impro. Plow
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ALSO CARLOADS OF TURNBUCKLE, SHACKLES & WIRE ROPE CLIPS

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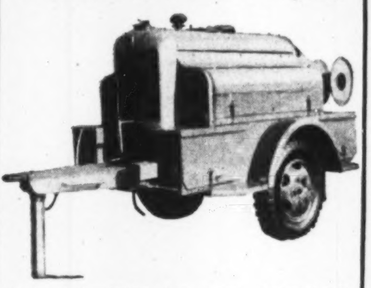
Can't Beat This Compressor for $1900

10 in Stock for Immediate Shipment



105 CFM INGERSOLL RAND PORTABLE

- Oil Engine Driven
- Two Stage
- On (2) Pneumatics
- Electric Starter
- Built in Tool Boxes
- (2) Live Hose Reels

Guaranteed the same as NEW. Inspect them—see them run. Try one for 30 days. Buy, or Rental Purchase.

AMERICAN AIR COMPRESSOR CORP.
Dell Ave. & 48th St. North Bergen, N. J.
Union 5-4848

FOR SALE or RENT

1½ yd Koehring 605 Diesel Crane 140′ bm. GM diesel. Long Tracks.

½ yd Link Belt LS50 Crane-Backhoe-Shovel. New 1948. Like new.

100 ton Steel Stiffleg Derrick with 200 HP 3D Elec. Hoist & Swinger.

65 ton G.E. Diesel Elec. Locomotive.

30 ton Ohio Gaso. Locomotive Crane.

25 ton Wiley Steel Stiffleg Derrick.

130 HP Christian 2D Diesel Hoist.

50 ton Colby 240 Revolver or Gantry.

MISSISSIPPI VALLEY EQUIPMENT CO.
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Koehring 34E Dual Drum Paver
37-B Bucyrus Erie Crane—Dragline
Lima 34 Paymaster Crane—Dragline Shovel
Lorain L50 Crane—Dragline
2 Caterpillar No. 12 Graders

A-1 Barber-Green Model 848 Heavy Duty Asphalt Plant Consisting Of:
    Model 848 Mixer
    Model 880 Hot Elevator
    Fines Hopper
    Model 880 Elevator 27′
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    Model 851 Dust Collector
    Model 881 Cold Elevator
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1946 Mack LF Diesel Tractor
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UNITED SOUTHERN CONTRACTORS, INC.
Greenville, South Carolina

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A TWICE MONTHLY LISTING OF DESIRABLE USED EQUIPMENT

REX MIXER — model 7S, with power loader and water tank, LeRoi gas engine. Mounted on two pneumatic tired wheels. A dependable piece of equipment at a very good price. **$550**

LE TOURNEAU SUPER "C" DOZER — complete with Buda engine and double scraper hook-up. This piece of equipment just came into our yard. It's in excellent condition. You'll find it a very good buy **$14,000**

INGERSOLL RAND PORTABLE COMPRESSOR — model IKA-500 with 500 cu. ft./min. capacity, mounted on four pneumatic tired wheels. Has had good performance record. Traded in on larger model. **$3,000**

INTERNATIONAL TRACTOR — model TD-18 with steel tracks. Powered by an International diesel engine. Complete with BE dozer blade. In very good condition **$9,000**

MIXERMOBILE — model 200 with 35′ tower and 10′ extension. In excellent condition. Price upon request.

MIXERMOBILE — model 61 on six pneumatics, powered by a heavy duty Ford engine. Barely used demonstrator. Will quote a good price to interested parties.

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LE TOURNEAU SUPER "C" TOURNAPULL WITH LP SCRAPER. In good condition and at a good price. **$4,500**

LORAIN ½ YD. TRUCK CRANE — powered by Hercules six cylinder gas engine. Has 25′ boom; is mounted on ten wheel Thew moto-crane carrier powered by Waukesha gas engine with good 11:00 x20 — 12 ply tires, live boom. You're in business with this one **$13,000**

LA PLANT CHOATE SCRAPER — capacity 14 yd. struck, 17 yd. heaped. Powered by Buda engine. In excellent condition. We'll give you a good price.

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FURNIVAL MACHINERY CO.
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FOR SALE

New Wire Rope Blocks

12″ Snatch Blocks with Hooks	$13.50
14″ Snatch Blocks with Hooks	18.50
16″ Safety Snatch Blocks with Shackles	20.00
14″ Double Blocks with Shackles	13.00
18″ Single 20 Ton with S. Shackle	25.00
18″ 3-Sheave 30 Ton with Shackle	50.00
18″ 4-Sheave 30 Ton with Shackle	75.00
#32 Drop Forge Hooks, New	2.00

ABERTHAW COMPANY
133 Southampton St. Boston 18, Mass.

FOR SALE

DIESEL ELECTRIC LOCOMOTIVES

STANDARD GAUGE

1—44 ton—1943—380 HP
1—65 ton—1948—530 HP
1—70 ton—1948—600 HP
1—80 ton—1941—500 HP
2—100 ton—1943—660 HP

EXCELLENT CONDITION

Frank M. Judge & Co., Inc.
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COMPLETE TUNNEL EQUIPMENT

For Drilling

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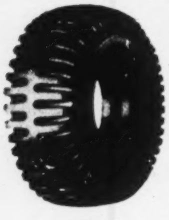

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Developed by the Elevator Division of the Westinghouse Corporation and called Automatic Traffic Pattern Control, the system is based on the Westinghouse Selectomatic operatorless elevator system, fitted with electronic "memory cells" and calculator.

The Selectomatic, forerunner of the new system, required a human starter to dial the correct traffic pattern for any selected time of the day or week. In the new system, however, the starter and dial are eliminated.

The number of calls from each floor and the pattern of selections on the elevator's control panel are "memorized" and tabulated by the system. Their effect on the entire system is calculated and the traffic pattern is altered or maintained to suit the condition that exists. In this manner, the transition from any one traffic condition to any other is accomplished automatically, eliminating the need for human judgment.

• **Going up**—Here's how the system works during an average day: In the early morning hours, the cars are parked at the bottom terminal, with motor-generators off. Should a call be received, the motor-generator of one car is started up and the car answers the call. Should another call be received while the first car is in operation, a second car is activated.

As tenants begin to arrive in increasing numbers, the elevator system gears itself to the predominantly upward traffic pattern. This is done by automatically setting a short time interval between cars. As soon as the first car leaves, a second car is ready for operation, and this one also leaves after the predetermined time interval. If incoming traffic increases still further, it is quite possible that the car will have reached capacity before the time interval has elapsed. When this occurs, an automatic load-weighing mechanism determines when the car will leave the terminal. Cars start down as soon as they reach the upper terminal, or if there are no cars at the bottom terminal, as soon as they reach their highest registered call.

When the up-peak has passed, the system "feels" this and sets itself for the smaller down-peaks at the beginning of "coffee breaks" and the lunch hour, the minor up-peaks of people returning from these breaks and lunch and also for the balanced up-and-down traffic between these periods.

• **Going down**—At the end of the day, when traffic is principally down, the system divides itself into two or more banks of elevators, high-zone banks and low-zone banks operating independently of one another. Cars in each zone start up as soon as they become available and start down as soon as they have answered their highest call. When the car is loaded, it automatically bypasses all other stops allowing each car to return to the lower terminal in the shortest time possible.

If, however, traffic in one zone becomes exceptionally heavy while the other remains relatively light, the system senses the situation and dispatches more cars to the heavy zone from the light zone.

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A new 6 to 7¼ cu yd concrete mixer features movement of the center of gravity forward to allow greater payloads while still maintaining legal distribution of the weight on the truck's axles. This is accomplished by mounting the power unit—a 93-hp Ford industrial 6 with basic Ford transmission—to the rear of the mixer and throwing the main weight of the concrete forward.

To achieve great strength, the drum itself is strengthened by two continuously welded overlapping mixing spirals. The folding chute is ⅛-in. steel and extends 8 ft 6 in. from the swivel center. A 4-ft extension is mounted on the fender.

Ninety gallons of water is carried in a front-mounted combined pedestal and tank with outlets for mixing and washing. A ¾-in. gear-type water pump is driven by V-belt from the mixer engine.

The mixer is suitable for mounting

(*Continued on page* 121)

LOCK JOINT
serves the
SOUTH
KENTUCKY
VIRGINIA
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
MISSISSIPPI
ALABAMA
GEORGIA
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IF YOU'RE FROM THE SOUTH . . . specifically Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Kentucky or Tennessee . . . our plant at Columbia, South Carolina, is ready and waiting to serve you. This Columbia plant, the fourth of our up-to-date permanent pressure pipe manufacturing yards, is equipped to produce Lock Joint Prestressed Concrete Cylinder Pipe in diameters from 16″ to 48″, designed for any pressure common to water works practice. The plant's central location in the Southeast makes it possible to deliver the completed pipe speedily and economically throughout this area.

IF YOU'RE FROM ANY OTHER PART OF THE COUNTRY EAST OF THE ROCKIES . . . our three other permanent pressure pipe plants located at Wharton, N. J.; Detroit, Mich.; and Turner, Kansas, stand ready to provide for your complete Reinforced Concrete Pressure Pipe requirements. All these plants are equipped to manufacture the most carefully designed modern Concrete Pressure Pipe in a large range of standard diameters, and have facilities to handle any contract however large or small.

SCOPE OF SERVICES—*Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains 16″ in diameter or larger, as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.*

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Established 1905
P. O. Box 269, East Orange, N. J.
PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich., Columbia, S. C.
BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. • Oklahoma City, Okla • Tulsa, Okla. • Beloit, Wis. • Hato Rey, P. R. • Caracas, Venezuela

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

"There's
only
ONE
reason!"
Norman
Rockwell

IT'S JUST THAT SIMPLE. There's only one reason in the world why 2 out of 3 wire rope users in the excavating and construction field prefer Roebling wire rope . . . *it costs a lot less on the job than any other.*

For maximum wire rope efficiency and economy, call your nearest Roebling office for a Field Man. He'll recommend the best ropes for your machines.

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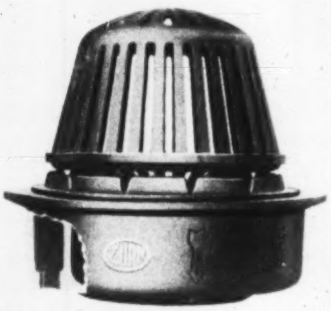
A subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1930 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

on ten-wheel trucks with 175-in. wheelbase. Willard Concrete Machinery Sales Co., 11700 Wright Road, Lynwood, Calif.



Steam-heated roof drains reduce ice clogging

Damage to roof areas from standing water backed up by ice or snow-blocked drain inlets can be reduced by a new steam jacketed roof drain.

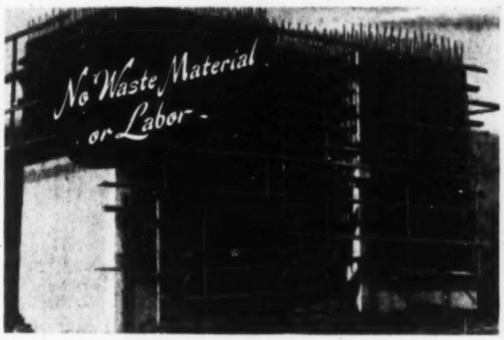
Live steam at 15 psi enters through the steam inlet, circles the sump area and is vented through an outlet on the opposing side. The drain is of the cloudburst type designed to carry off sudden heavy surges of water.

The dome has a wide-flair, non-clogging mushroom strainer and gravel guard attached to the body by a bayonet-type locking device for easy removal for cleaning. The drains are furnished in cast iron, galvanized cast iron and bronze. J. A. Zurn Mfg. Co., Erie, Pa.

Hollow core wall, ceiling panels

Plastic-finished hollow core panels are now available for commercial and other non-residential interiors. The panels come in 24 x 48-in. and 24 x 96-in. sizes and are said to combine quick installation and low maintenance requirements. A tongue and groove joining system with vee joints simplifies accurate alignment. The

(*Continued on next page*)



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Atlas Speed Forms are interchangeable for use on slabs, walls, circular tanks, manholes, modular structures. For Rent or Sale.

BEAT HIGH LABOR COSTS with SPEED FORMS

ALL STEEL—for indefinite use without repair.

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LOW LABOR COST—No special tools or skill required.

ADAPTABLE—Same form is used for walls, slabs, rectangular or circular structures.

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Atlas Speed Forms can be assembled by hand in small panels, or in large wall-size panels for crane handling.

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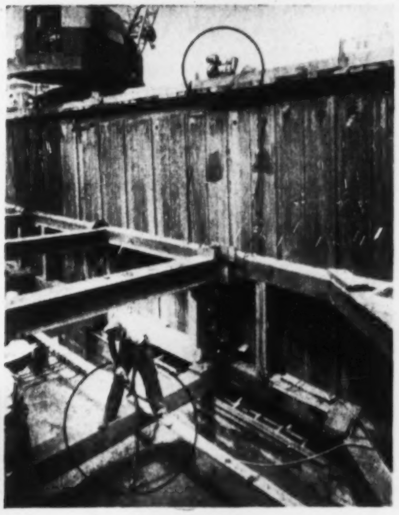
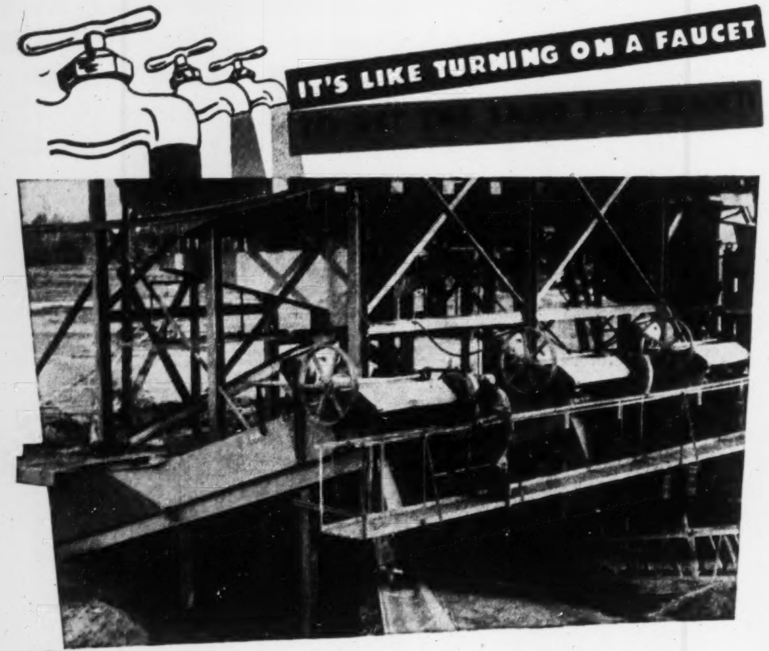


This is a real glutton for concrete placement jobs. The Maginniss keeps the concrete rolling fast, your operators fresh and alert, production and profits up. It is one man operated, has no flexible shafts. Electric motor is in the vibrator head.

Write and get complete information today.

Maginniss POWER TOOL CO.
MANSFIELD, OHIO



THE neat, highly efficient sand and gravel plant of Knox County Sand Co., Vincennes, Indiana, is pictured—but, it has to be seen to be appreciated.
Material is pumped to the plant from a trim dredge equipped with an Eagle 10"—60' heavy duty Eagle "Swintek" Dredging Ladder.
The plant, designed by Eagle, is flexible. Produces one, two, or three gradations of material, one at a time or simultaneously. Dredged material is discharged in the pump box atop the plant. It is then screened. Material passing through screen flows to an Eagle 32' Double Water Scalping Tank. Coarse mesh sand settles at the inlet end of tank, less coarse sand settles near the middle and fine mesh sand at the far end. Excess water flows over adjustable weirs.
From bottom of tanks sand flows to gathering flumes, then through adjustable bleeder gates to a divided triple blending flume. This flume controls the ratio of the size of material troughed to the three Eagle 57" x 24' double screw Fine Material Washer-Classifier-Dehydrators.
Gravel from the screen is chuted to an Eagle 7' x 20' Log Washer, shown at top right, which frees it of clay and silt.
Knox has "on tap" material to any specification. Output averages 150-tons per hr.—17% gravel, 83% sand. Concrete sand is main product, but asphalt sand, mason sand and plaster sand are also produced—just like turning on a faucet! Why not investigate Eagle Equipment for your plant? Send for literature today!

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Log Washers
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MANUFACTURERS OF THE "CEMENT GUN"

tongues are pre-drilled for screw-type nails.

The panels are a wood frame between two sheets of Masonite. The back of the panel is sealed and baked, and the front has a baked plastic finish. The company claims that the resulting sealed panel has insulating properties and is extremely strong and stable, remaining straight under difficult moisture and temperature conditions. Korelock Panels, Marsh Wall Products, Inc., Dover, Ohio.

New Product briefs . . .

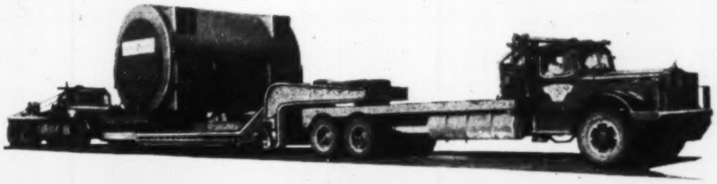
A double magnifier for duplex slide rules permits accurate readings on both sides of the rule simultaneously. The P. E. G. Duplex magnifier also comes in a **special version for pocket-size slide rules** and has 3-power magnification. They can be purchased from **Flatto Management Co., 70 W. 40th St., New York 36, N. Y.**

Latest in the line of **Snap-Tite couplers** is one **for 8-in. pipe.** It has standard flanged connections and a valve in the coupler body automatically shuts off liquid flow when the nipple is removed. Made by **Snap-Tite Inc., Union City, Pa.,** they're available in forged steel, bronze or almost any type of material in sizes from ¼ in. to 8 in.

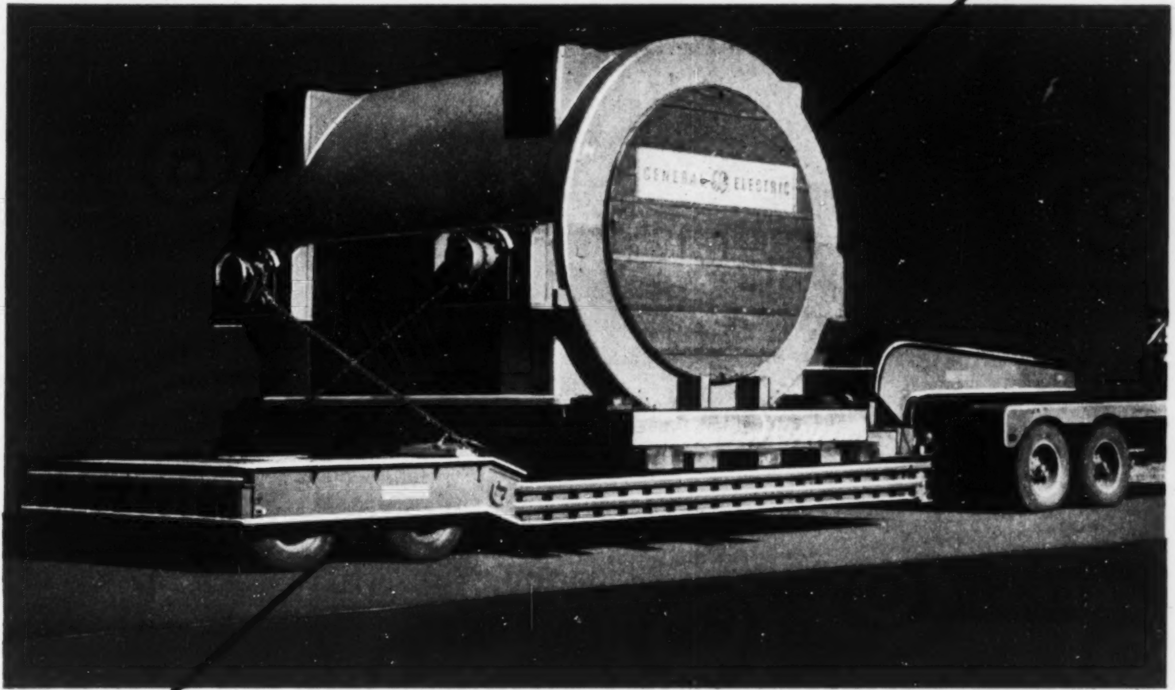
Non-inflammable plastic cable clamps are available from **Holub Industries Inc., Sycamore, Ill.** Made of Saran, a strong thermoplastic, they're said to offer excellent electrical and thermal properties. They're inert to fungicidal attack, resist corrosion or sweating and come in 17 sizes from ⅛ in. to 1¼ in. inclusive.

Foundation Equipment Corp., 38th Ave. at 10th St., Long Island City 1, N. Y., offers a **new wellpoint pump—a 4-in.** high-capacity gas-engine-driven unit. Said to have all operational features of the company's 6-, 8- and 10-in. units, it can be used as a sump pump with a special strainer that keeps out foreign materials.

A truck and trailer wheel block, made of cast alloy steel, is designed for holding heavy vehicles and loads. The **Casteel Safety Wheel Block** has cast-in holes on the bottom plate to permit nailing to freight car or truck floors, or shipping platforms. Gripper teeth on the bottom plate prevent creeping or slipping, even on ice, according to the maker, **Calumet Steel Castings Corp., 1636 Summer St., Hammond, Indiana.**



Jeff Graham, Trucking Contractor, Lubbock, Texas, delivered this giant 218,000 lb., 50,000 KVA Generator with a Fruehauf C-75-D-SP Carryall Trailer.



"Fruehaufs Top Them All *for the BIG HAULS*"

***Says:* JEFF GRAHAM, Trucking Contractor, Lubbock, Texas**

"OUR LOADS get bigger and heavier every year," Mr. Graham points out. "That's why we've found it takes really tough, dependable hauling equipment to make our heavy machinery hauling business profitable. Fruehauf Trailers have proved themselves top performers across the board."

Next time you're in the market for a Trailer, ask yourself this question: Does the unit I'm considering have *all the specifications* I need to handle my job profitably for many years to come?

Fruehauf Trailers are built for long, trouble-free service, with specifications and features matched to *your job,* not to a price. For *price alone* is a poor criterion when you're buying Trailers. Make sure you get *full value!* Check the specifications carefully before you buy. For full Trailer information write today for your free copy of Fruehauf's Trailer Catalog . . . it's the most complete in the industry!

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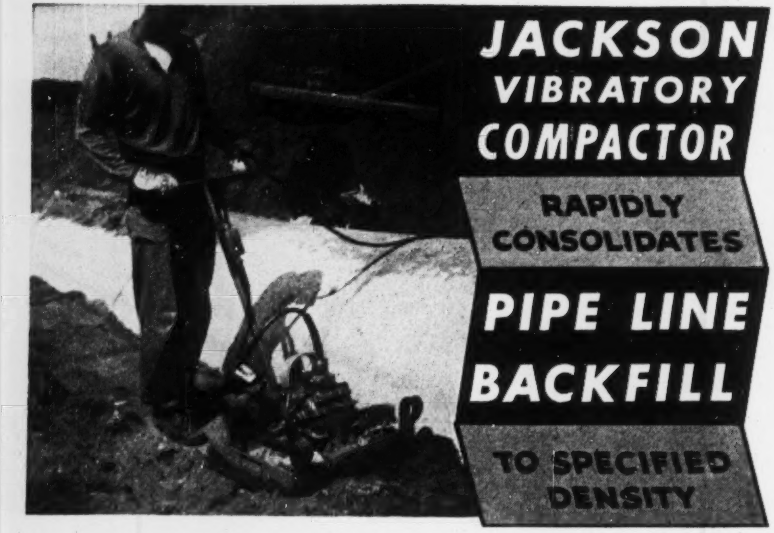

Result — pipe line is uniformly supported by compacted soil and top of trench stays to finished grade. This manually-guided, self-propelling Jackson Compactor will compact granular soils at optimum moisture to specified density in depths of 8" to 12" at the rate of 2,400 sq. ft. per hour. It is available with quickly interchangeable bases of 12" to 24" and is equally advantageous for blacktop pavement widening and patching — paving drives, walks, etc. Operated from Jackson Power Plant mounted on auto trailer with quick pick-up of Compactor. For rent or sale at your Jackson Distributor. Write for details.

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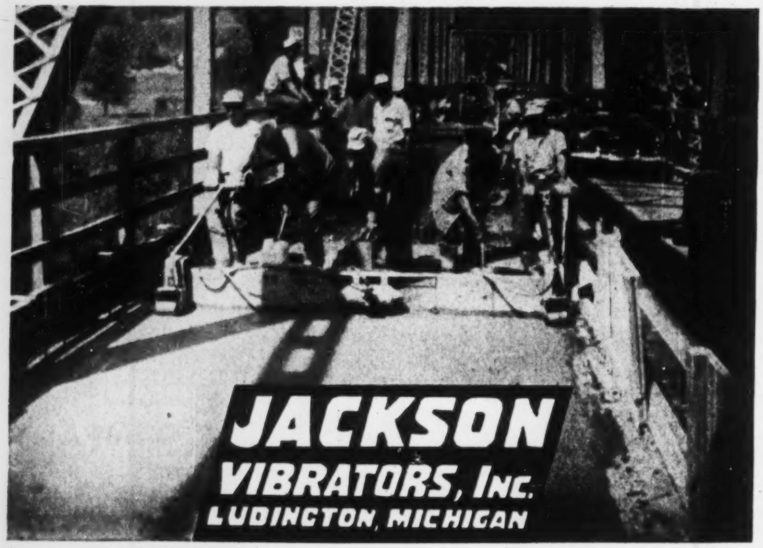
For the tight spots or just straight-away paving you will find the Jackson Electric Vibratory Screed the fastest, most convenient and efficient screed you have ever used. It strikes off to any crown, undercuts at curb or sideform, works up to and around all obstructions. It permits pouring slabs up to 30' without center joint. Requires only two men on widest slab and is the only screed that can be rolled back for second passes on 4 rollers. Powered by Jackson Portable Power Plant. For rent or for sale at your Jackson Distributor. Details on request.



PUBLICATIONS

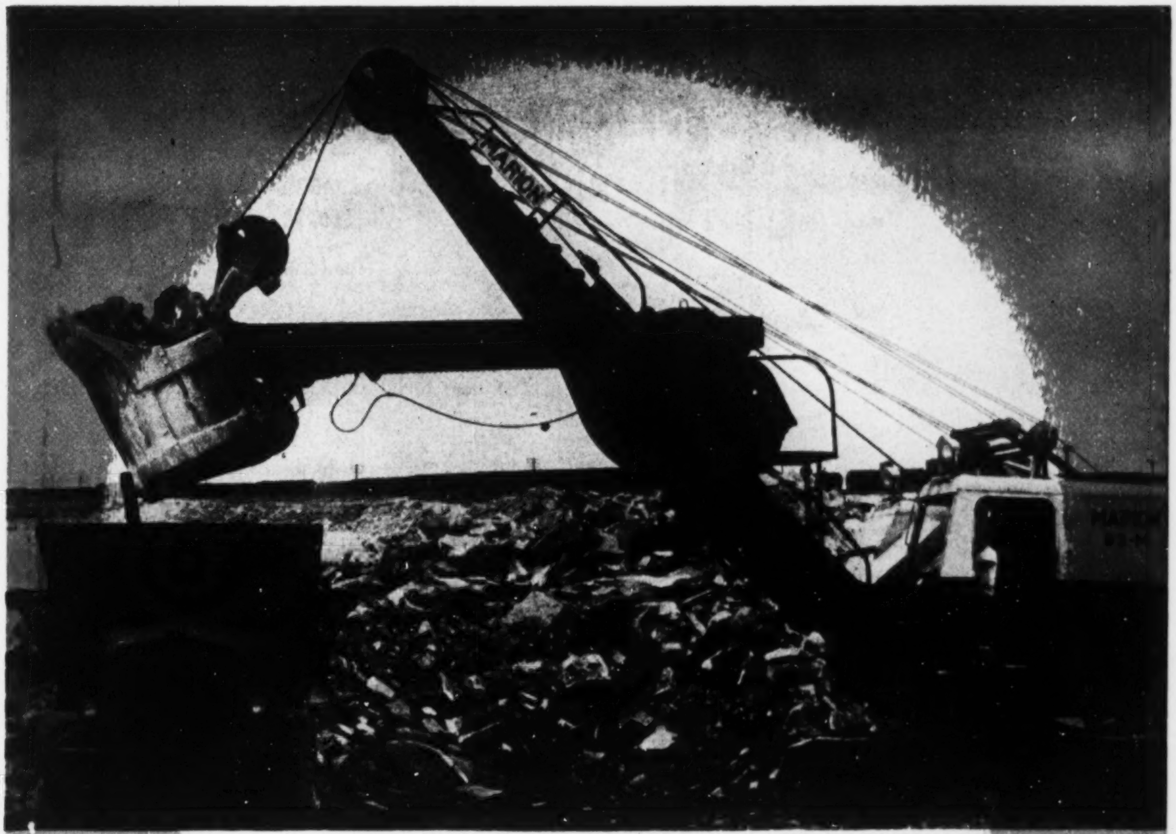
Timber structures—How the research facilites of its laboratories contribute to technical developments in wood products is outlined in this 32-page booklet. During the past year 123 projects were carried out for 93 clients on such subjects as laminated members, finished flooring, joint deformation in long-span wood trusses, and lumber seasoning. Some of the notable timber structures of the last year are described and illustrated. Write for Advancements in Wood Research, TIMBER ENGINEERING CO., 1319 18TH STREET, N. W., WASHINGTON 6, D. C.

Pipe piles—Covering pipe piles, pile shells and caissons, this 8-page booklet deals with sizes, and preparation, mill service, field advantages, specifications and tables on dimensions and properties of spiral-welded pipe piles as well as data on pile shells. It is amply illustrated throughout. The booklet may be obtained by writing to ARMCO DRAINAGE & METAL PRODUCTS, INC., MIDDLETON, OHIO.

Land drainage—Benefits of tile drainage of land and underground irrigation are described and illustrated in detail in this small 8-page booklet. A list of governmental agencies is included where a farmer can obtain financial aid. Farm drainage contractors can obtain copies of "Why Drain Land" from GAR WOOD INDUSTRIES, INC., CUSTOMER SERVICE DEPARTMENT, WAYNE, MICHIGAN.

Dust collection equipment—This 12-page bulletin contains charts, costs of dust collecting equipment, range of particle sizes, concentrations in collector performances, drawings of different types of dust collectors, lists of practical "don'ts," and other data on the selection, installation and operation of dust collection equipment. Valuable information for the plant engineer who encounters any kind of dust in processing. Write for Reprint No. 270 P2, DUST CONTROL DIVISION, AMERICAN AIR FILTER COMPANY, INC., LOUISVILLE 8, KENTUCKY.

Friction clutches and clutch couplings—A new 4-page folder of schematic drawings and dimensional tables on Beyl friction clutch enables the engineer to select the right clutch or coupling for any requirement. Ask for Folder 2437, LINK-BELT COMPANY, 307 N. MICHIGAN AVE., CHICAGO 1, ILLINOIS.



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Bigger than you think, unless you know the MARION 93-M. Genuine "bigness" in a shovel, dragline, clamshell or crane is a blend of many features. The MARION 93-M has them all.

Crowd the dipper into rock, ore or shale. Feed it the hoist power — all it has. Watch the 93-M show its muscle and deliver real hoist speed and power without flinching. In heavy loads, there's reserve strength for every digging need.

Such performance qualities give an operator confidence as he proceeds in tough digging. The combination of speed and power in hoisting, digging and swinging lets him get things done in a hurry. Fingertip ability to spot the dipper keeps him fresh on the job. His machine's sheer strength and power keep things moving dependably at a fast pace, year after year.

Such factors make the 93-M a bigger producer than you might expect from a 2½-yard machine. Proof is yours for the asking, either in performance records of machines in the field or in terms of the engineering and construction features which make such performance possible.

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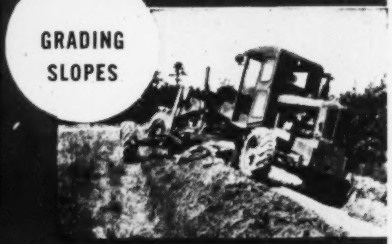

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Top performance, no matter what the footing . . . no matter what the job.

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When the load is heavy, rear steer places the rear drivers so that they push behind the toe of the blade, while the front drivers pull ahead of the heel. More material is moved, farther and faster.

When there's finishing to be done, rear steer moves the rear wheels off to the side where they won't leave tire marks.

Yes, on job after job, right straight through the year, you've got to SWING THAT REAR-END to get maximum results, and only an Austin-Western Power Grader can swing its rear-end.

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ADVERTISERS IN THIS ISSUE

Adams Mfg. Co., J. D. 12, 13
Aetna Casualty & Surety Co., The 98
Allison Engine, Div., G.M.C. 82
American Pipe & Const. Co. 69
Atlantic Steel Corp. 93
Austin-Western Co. 126

Baker Mfg. Co. 56
Barber-Greene Co. 97
Barco Mfg. Co. 58
Bay City Shovels, Inc. 35
Bayley Co., The William 4
Belmont Iron Works 52
Bendix Aviation Corp. 70, 71
Bethlehem Steel Co. 43
Blackhawk Mfg. Co. 60
Blaw-Knox Div., Blaw Knox Co. 46
Butler Bin Co. 84
Byers Co., A. M. .... 2nd Cover

Cement Gun Company 122
Chevrolet Motors Div., Gen. Motors Corp. 62
Cities Service Companies 67
Clipper Mfg. Co 53
Colonia Country Club 89
Complete Machinery & Equip. Co. 92

Deslauriers Column Mold Co., Inc 90
Dodge Corp., F. W 94
Dodge Div., Chrysler Corp 7
Dorr Co., The 73
Dow Chemical Co 16
Dudgeon, Inc., Richard 86

Eagle Iron Works 122
Electric Tamper & Equip. Co 124
Economy Forms Corp. 91
Erie Steel Construction Co. 8

Fennel Instrument Corp. of Amer 96
Flint Steel Corp. 91
Fort Pitt Bridge Works 9
Foundation Equipment Corp. 2
Fruehauf Trailer Co. 123
Fuller Mfg. Co. 54

Getman Bros. 92
Gledhill Road Machinery Co. 98
Goodyear Tire & Rubber Co. 1
Grace Mfg. Co., W. E. 91
Griffin Wellpoint Corp. 84
Gunite Concrete & Const. Co. 93
Gunite Construction Co. 94

Hardinge Co., Inc. 94
Harnischfeger Corp. 49
Homelite Corp. 39

Industrial Friction Engrg. Corp. 93
International Harvester Co. 18
Irving Subway Grating Co. 127
Irvington Form & Tank Corp. 121

Jahn Trailer Div. 52
Joy Mfg. Co. 76

Klemp Metal Grating Corp. 15

Lee & Son, W. W. 98
Lewis & McDowell, Inc. 88
Lipe-Rollway Corp. 66
Lock Joint Pipe Co. 119

M & H Valve & Fitting Co. 89
Maginniss Power Tool Co. 121
Marietta Concrete Corp. 6
Marion Power Shovel Co. 125
Master Builders Co. .... 3rd Cover
Maxon Const. Co., Dumpcrete Div. 95
Mayo Tunnel & Mine Equip. Co. 92
McGraw-Hill Book Co. 87

Naylor Pipe Co. 85
Northwest Engineering Co. 3

Opplem Company, Inc. 63

Pacific Engineering Sales Co. 84
Penn Metal Co., Inc. 68
Pennsylvania Drilling Co. 90
Pennsylvania Wire Glass Co. 96
Portland Cement Assn. 40
Pusey-Jones Corp. 88

Raymond Concrete Pile Co. 11
Roebling's Sons Co., John A. 120
Ruberoid Co., The 29
Rust-Oleum Corp. 57
Ryerson & Sons, Inc., Jos. T. 97
Sauerman Bros., Inc. 88
Schult Corp. 89
Sherman Products, Inc. 86
Smith-Blair, Inc. 90
Smith, Gordon & Co., Inc. 63
Sprague & Henwood, Inc. 52
Standard Steel Spring Co. 99
Stoody Company 61
Sturtevant Co., P. A. 127
Symons Clamp & Mfg. Co. 87
Standard Dry Wall Prod. 14

Taller & Cooper, Inc. 10
Termite Drills, Inc. 87
Texas Company .... 4th Cover
Timber Engineering Co. 55
Timken Detroit Axle Co. 79
Timken Detroit Axle Co. 80
Timken Roller Bearing Co. 5
Tinney Drilling Co. 98
Trailer Village, Inc. 94

U. S. Pipe & Foundry Co. 75
U. S. Steel Corp. 64, 65
Universal Atlas Cement Co. 20

Vulcan Iron Works 99

Wheeling Corrugating Co. 72
Williams Co., J. H. 86

Youngstown Sheet & Tube Co. 30

Professional Services 117

SEARCHLIGHT SECTION

(Classified Advertising)
H. E. Hilty, Mgr.

EMPLOYMENT
- Positions Vacant 106, 107
- Selling Opportunities Offered 107
- Positions Wanted 107
- Selling Opportunities Wanted 107

EDUCATIONAL
- Schools 107
- Tutoring 107

NOTICES
- Proposal 103, 104, 105

EQUIPMENT
(Used or Surplus New)
- For Rent 116
- For Sale 108-117
- Piling 114
- Pipe 117
- Rail 116
- Surveying Instruments 117

WANTED
- Equipment 112

ADVERTISERS INDEX 107

ENGINEERING NEWS-RECORD

D. S. Robertson, *Adv. Sales Manager*
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EDITORIALS

Better specifications, lower cost

ENGINEERS AND CONTRACTORS in all kinds of construction can do their part to assure economical construction by following the example of a unique device developed by the Associated General Contractors of America. Called the Specifications Task Unit, it is a committee appointed by AGC to meet with a major construction-buying agency for the purpose of ironing out standard specification and design practices that tend to make that agency's construction unduly expensive. Different task units have been assigned to work with the Army Engineers, the Bureau of Yards and Docks and the Bureau of Reclamation. Task units have also been assigned to other large owner organizations.

These units have met with their agencies, and some of them reported substantial specifications improvements at the AGC meeting in Miami two weeks ago (ENR April 2, p. 23). No doubt they will report further advances at each future annual convention—the men on both sides of the fence being thoroughly competent in the complexities of construction. But the AGC units are necessarily limited in their operation to work with large agencies, whereas better specifications are a universal need.

There seems to be no reason why the basic idea of contractor-engineer cooperation in specification improvement can not be applied all the way down the line. Instances of such cooperation by local organizations—in contracting, engineering and architecture, in conjunction with state and municipal bodies—have in fact come to our attention; they confirm the device's feasibility on a smaller scale.

And there is no reason why the engineers for individual construction-buyers should not make full use of the idea, by discussing plans and specifications with prospective bidders before fixing the details of the work. The objective, of course, is more efficient and less costly construction and that is needful regardless of the size of the operation.

The "Chief" retires

IT WAS as "commissioner" that Thomas H. MacDonald retired last week as head of the U. S. Bureau of Public Roads, but it was a title that never seemed to fit. When he took the job 34 years ago the title was chief of the bureau, and "Chief" he became, first to his associates and then to an ever-widening circle that must now include everyone with even the slightest interest in roads. It ceased to be just a title and became a personal designation, applied with affection and admiration. And Chief MacDonald, we predict, he will continue to be in his "retirement"—which will consist of heading a new Transportation Institute at Texas A & M College.

Both by his character and his deeds Tom MacDonald set an example as a combination public servant and engineer that has seldom been equaled. During the nearly half century that he served the cause of better highways, his objective was always the same—to keep the roads abreast or ahead of the development of the motor car. As chief roads engineer of Iowa his pioneering in setting standards of design and practice for drainage, grades and surfaces got that state out of the mud and gave it the nation's first state highway system. The roads were more than adequate for the cars, but not for long. Interstate travel loomed, and 48 unco-ordinated systems could not meet the need. The U. S. Bureau of Public Roads was formed and in 1919 Tom MacDonald became its first chief. He renewed on a national scale his race with the pace-setting motor car. At times ahead, at times behind, he kept the race close enough to give America the best highway system in the world, and to create a whole new segment of our national economy—roadbuilding.

Unquestioned integrity and unyielding adherence to principle were characteristics that Chief MacDonald brought to bear on every aspect of his job. One basic principle was that the states were sovereign, so that a federal highway net could be achieved only through their active and willing cooperation. The federal-aid formula was the means, and the present federal-aid system was the result, both of these are MacDonald monuments.

A second basic principle, originally taken for granted and so only formally expressed when toll roads began to appear, was that roads should be free and that toll roads were not the answer to our main highway needs. It can be argued that here the Chief's strict adherence to principle led him to temporize in planning for the integration of the independent toll roads into the main national highway net. And still the principle was right, for toll roads can solve only a few of the road problems on a few heavy traffic roads. Moreover, Chief MacDonald saw toll roads for what they are—financing devices—and almost his last pronouncement in office related to a way to combine tolls with gasoline taxes to get lower interest rates on bonds. Without sacrificing principle he indeed was seeking a way to use the toll road idea to improve the highway net. To win the race with the motor car was always his objective throughout his long career in office.

Tom MacDonald brought great honor to the civil engineering profession. He originated, developed and operated a post of great public trust with integrity and according to principles that produced a vast road system with remarkable efficiency and economy. The "Chief" retires, but his precepts and examples will continue to influence roadbuilding and administration for many years to come.

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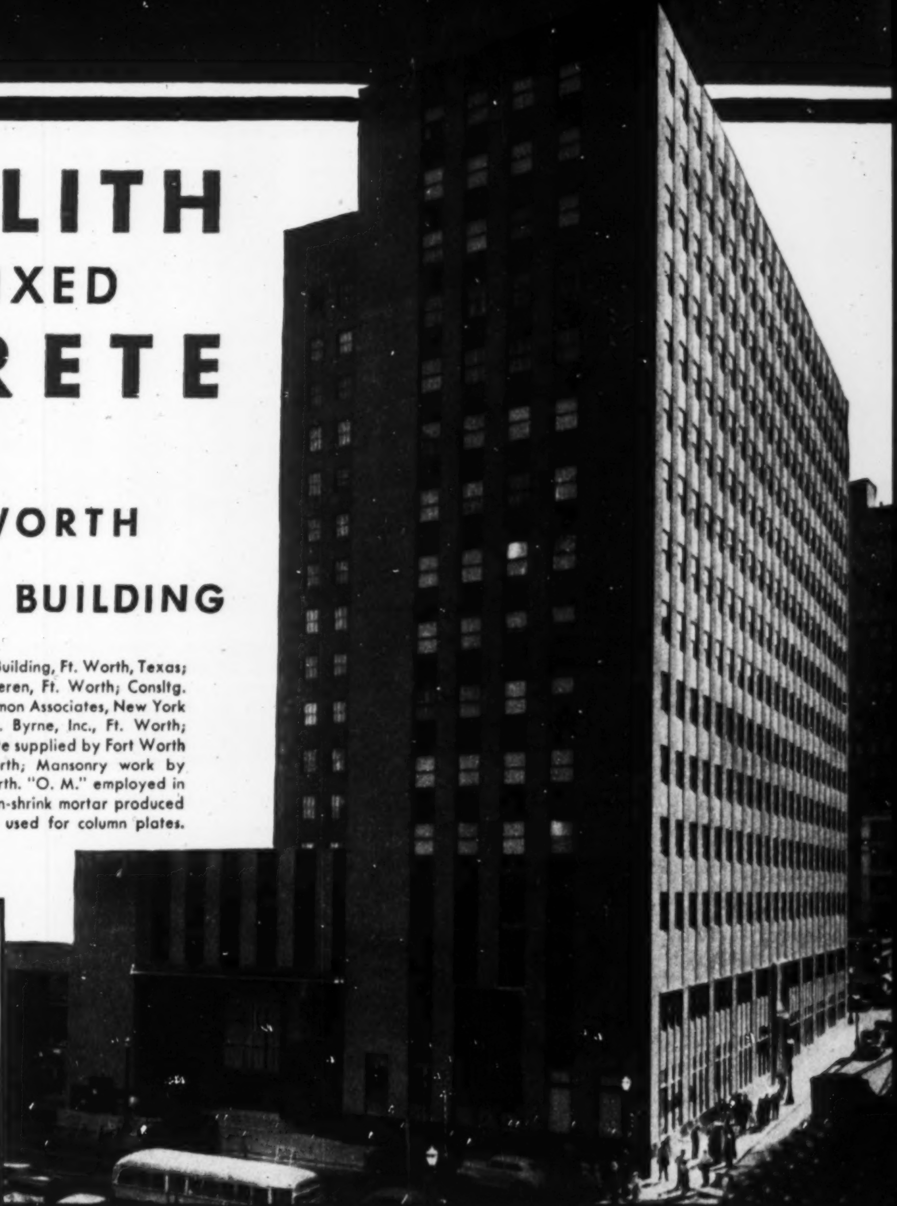

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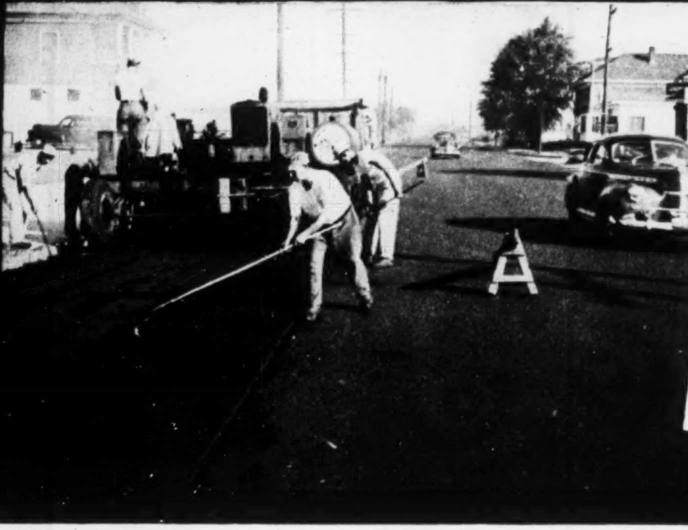
The traffic

Averages 13,000 vehicles a day, including a large proportion of trucks.



The pavement

The Rhode Island highway department constructed heavy-duty Texaco Sheet Asphalt.

The Texaco Sheet Asphalt pavement was laid by the Campanella and Cardi Construction Company of Hillsgrove, R. I.

Newport Avenue is more than a local thoroughfare of Pawtucket, R. I. It is also a link in U. S. Route 1-A. Not only does traffic average approximately 13,000 vehicles a day, but it includes a large proportion of heavy trucks.

Last year, when the Rhode Island highway department decided to resurface a large section of Newport Avenue, a resilient, heavy-duty Texaco Sheet Asphalt pavement was laid over the existing 20-year-old asphalt surface. The new plant-mixed asphalt pavement was laid in two courses, a binder course and a dense, waterproof top, the latter consisting of asphalt cement and scientifically graded sand. Each course is 1½ inches thick.

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